Service Manual

MODEL: GWH18AC-D3DNA1B（CB11500430）
GWH24AC-D3DNA1B（CB11500450）
(Refrigerant R410A)

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

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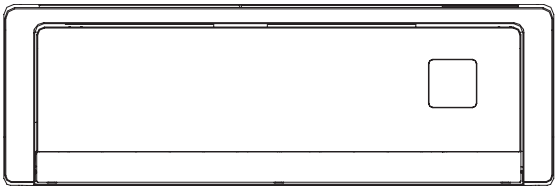
Summary and features

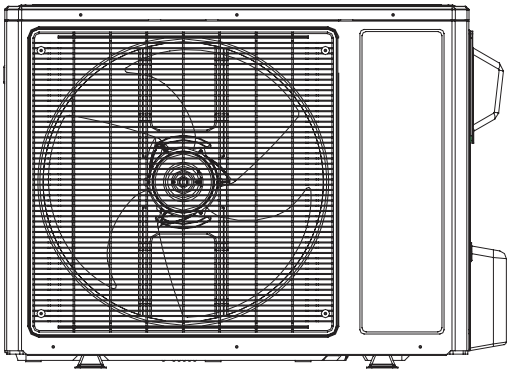
Indoor Unit

GWH18AC-D3DNA1B/I
GWH24AC-D3DNA1B/I

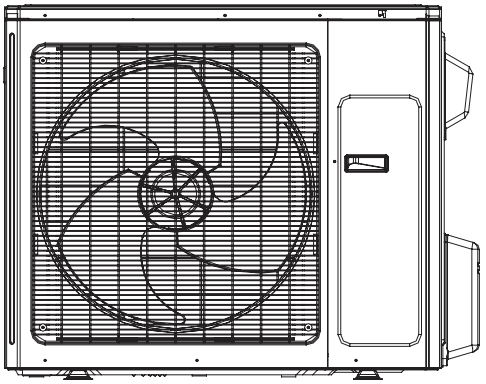


Outdoor Unit

GWH18AC-D3DNA1B/O



GWH24AC-D3DNA1B/O



Remote Control

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1.Safety Precautions

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher nearby when brazing. Use care in handling, rigging, and setting bulky equipment.

Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and current editions of the National Electrical Code (NEC).

Recognize safety information. This is the safety-alert symbol ⚠ . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

- **The unit should be installed according to the instructions in order to minimize the risk of damage from earthquakes, hurricanes or strong winds.**
- **Contact of refrigerant and fire generates poisonous gas.**
- **Use specified refrigerant only.**

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Never use the system compressor as a vacuum pump.

Refrigerant lines and indoor coil should be evacuated using the recommended deep vacuum method of 500 microns. The alternate triple evacuation method may be used if the procedure outlined below is followed. Always break a vacuum with dry nitrogen.

- **Keep your fingers and clothing away from any moving parts.**
- **Clear the site after installation. Make sure no foreign objects are left in the unit.**
- **Always ensure effective grounding for the unit.**

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

- **Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections or inadequate grounding can cause accidental injury or death.**
- **Ground the unit according to local electrical codes.**
- **Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.**
- **Make sure the ceiling/wall is strong enough to hold the unit's weight. The outdoor unit should be installed in a location where air and noise emitted by the unit will not disturb the neighbors.**
- **Properly insulate any refrigerant or condensate line running inside a room to prevent "sweating" that can cause dripping water and damage to walls and floors.**
- **The outdoor unit must be installed on stable, level surface, where there is no accumulation of snow, leaves or rubbish.**

⚠ Caution

- **Never install on the place where a combustible gas might leak, or it may lead to fire or explosion.**
- **When the unit is installed at telecommunication centers or hospitals, take a proper provision against noise.**
- **When installing at a watery place, provide an electric leak ground fault breaker.**
- **Do not wash the unit with water.**
- **Be very careful about unit transportation.The unit should not be carried by only one person if it is more than 45lb.**
- **Do not touch the heat exchanger fins with bare hands.**
- **Do not touch the compressor or refrigerant piping whithout wearing glove.**
- **Do not operate the air conditioner without air filter.**
- **Should any emergency occur, stop the unit and disconnect the power immediately.**

2.Specifications

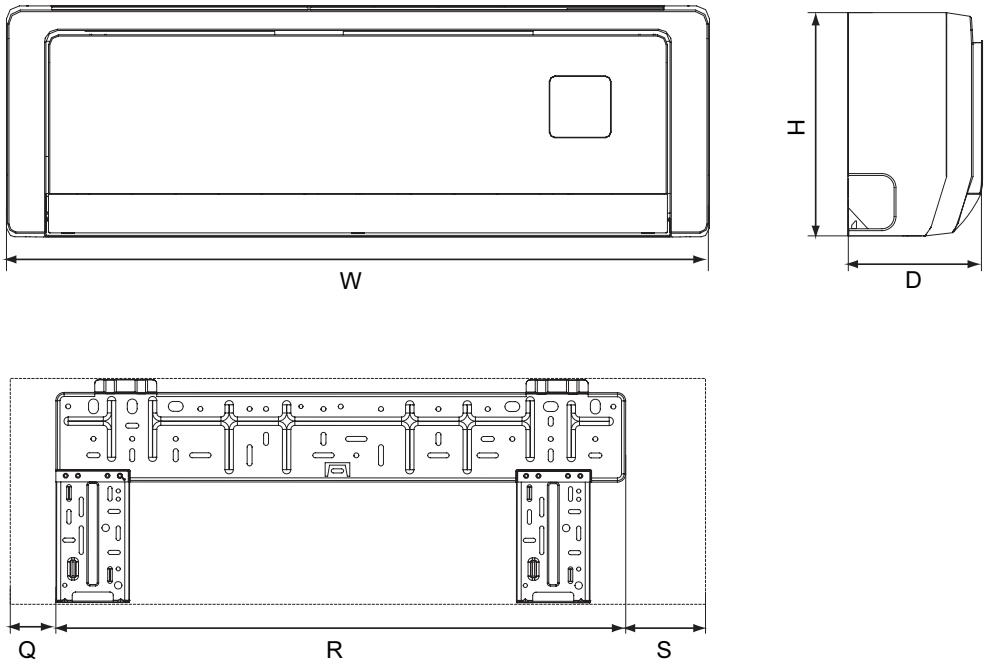
Model		GWH18AC-D3DNA1B		GWH24AC-D3DNA1B	
Product Code		CB11500430		CB11500450	
Function		COOLING	HEATING	COOLING	HEATING
Rated Voltage		208-230V~		208-230V~	
Frequency(Hz)		60Hz		60Hz	
Total Capacity (W) Standard (Low~High):		5275 (1820~6450)	7325 (1200~7325)	6155 (2300~7680)	7620 (1750~8200)
Total Capacity (Btu/h) Standard (Low~High):		18000 (6200~22000)	25000 (4100~25000)	21000 (7800~26200)	26000 (6000~28000)
Power Input (W) Standard (Low~High):		1500 (180~2650)	2700 (240~2700)	1750 (220~2660)	2700 (260~2700)
Rated Input (W)		2650	2700	2660	2700
Rated Current (A)		12	12.4	12.2	12.5
Air Flow Volume (CFM) (SH/H/M/L)		488/441/383/324		606/471/412/353	
Moisture Removal (gal./hr.)		0.5		0.7	
EER (BTU/W)		12		12	
Energy Class		SEER=20 HSPF=10.2		SEER=18 HSPF=10.2	
Indoor unit	Model of Indoor Unit	GWH18AC-D3DNA1B/I		GWH24AC-D3DNA1B/I	
	Fan Motor Speed (rpm) (H/M/L)	1500/1150/1050/950		1380/1000/900/750	
	Output of Fan Motor (w)	20		35	
	Input Power of Heater (w)	/		/	
	Fan Motor Capacitor (μF)	1.5		2.5	
	Fan Motor RLA(A)	0.25		0.45	
	Fan Type	Cross flow fan		Cross flow fan	
	Evaporator	Aluminum fin-copper tube		Aluminum fin-copper tube	
	Row-Fin Gap(inch)	2-1/14		2-1/14	
	Swing Motor Model	MP28VB		MP35XX	
	Output of Swing Motor (W)	2.5		2.5	
	Fuse (A)	PCB 3.15A		PCB 3.15A	
	Sound Pressure Level dB (A) (H/M/L)	46/43/40/35		51/43/40/35	
	Sound Power Level dB (A) (H/M/L)	56/53/50/45		61/53/50/45	
	Dimension (W/H/D) (inch)	37.7*11.8*7.7		42.9*12.9*8.2	
	Dimension of Package (L/W/H) (inch)	40.7*15*11		45.6*16.1*12.2	
	Net Weight /Gross Weight (lb.)	28/39		35/46	

Outdoor unit	Model of Outdoor Unit		GWH18AC-D3DNA1B/O		GWH24AC-D3DNA1B/O	
	Compressor Manufacturer/trademark		China Resources (Shenyang) Sanyo CO.,LTD		China Resources (Shenyang) Sanyo CO.,LTD	
	Compressor Model		C-6RZ146H1A		C-6RZ146H1A	
	Compressor Type		Twin rotary compressor		Twin rotary compressor	
	L.R.A. (A)		41		41	
	Compressor RLA(A)		8.4		8.4	
	Compressor Power Input(W)		1640		1640	
	Overload Protector		1NT11L-3979		1NT11L-3979	
	Throttling Method		Electronic expand valve		Electronic expand valve	
	Starting Method		Transducer starting		Transducer starting	
	Working Temp Range cooling/heating (Fahrenheit)		41≤T≤115	5≤T≤86	41 ≤T≤115	5 ≤T≤86
	Condenser		Aluminum fin-copper tube		Aluminum fin-copper tube	
	Rows-Fin Gap(inch)		2-1/16		2-1/16	
	Coil length (l) x height (H) x coil width(L) (inch)		(32-15/16)*26*(1-1/2)		(38-1/16)*(29-7/16)*(1-1/2)	
	Fan Motor Speed (rpm) (H/M/L)		690/500		780	
	Output of Fan Motor (W)		60		90	
	Fan Motor RLA(A)		0.4		0.6	
	Fan Motor Capacitor (uF)		/		/	
	Air Flow Volume of Outdoor Unit (CFM)		1883		2472	
	Fan Type		Axial fan		Axial fan	
	Defrosting Method		Auto defrost		Auto defrost	
	Climate Type		T1		T1	
	Isolation		I		I	
	Moisture Protection		IP24		IP24	
	Permissible Excessive Operating Pressure for the Discharge Side(psi)		551		551	
	Permissible Excessive Operating Pressure for the Suction Side(psi)		174		174	
	Sound Pressure Level dB (A)		54		56	
	Sound Power Level dB (A)		64		66	
	Dimension (W/H/D) (inch)		35*27.5*13.4		36.2*31.1*14.5	
	Dimension of Package (W/H/D) (inch)		40.5*28.9*18.1		41.9*33*19	
	Net Weight /Gross Weight (lb.)		110/121		118/132	
	Refrigerant and Charge (oz.)		R410A/51.1		R410A/63.4	
Connection Pipe	Precharge line length (ft.)		25		25	
	Gas additional charge(lb./ft.)		0.14		0.22	
	Outer Diameter	Liquid Pipe(inch)	Φ1/4		Φ1/4	
		Gas Pipe (inch)	Φ1/2		Φ5/8	
	Max Distance	Height (ft.)	50		50	
		Length (ft.)	100		100	

The above data is subject to change without notice. Please refer to the nameplate of the unit.

3. Construction Views

3.1 Indoor Unit

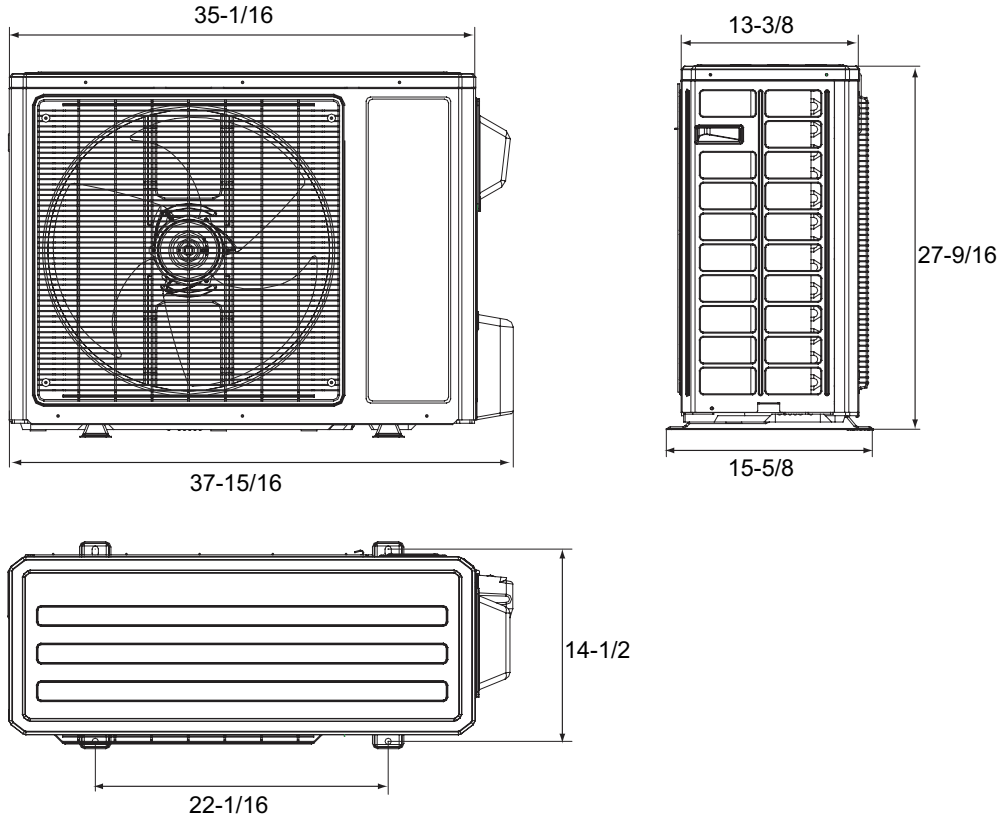


Unit:inch

Model	W	H	D	Q	R	S
GWH18AC-D3DNA1B	37-13/16	11-13/16	7-11/16	4-5/8	27-5/16	5-13/16
GWH24AC-D3DNA1B	42-15/16	13	8-3/16	8-7/16	26-15/16	7-1/2

3.2 Outdoor Unit

GWH18AC-D3DNA1B/O



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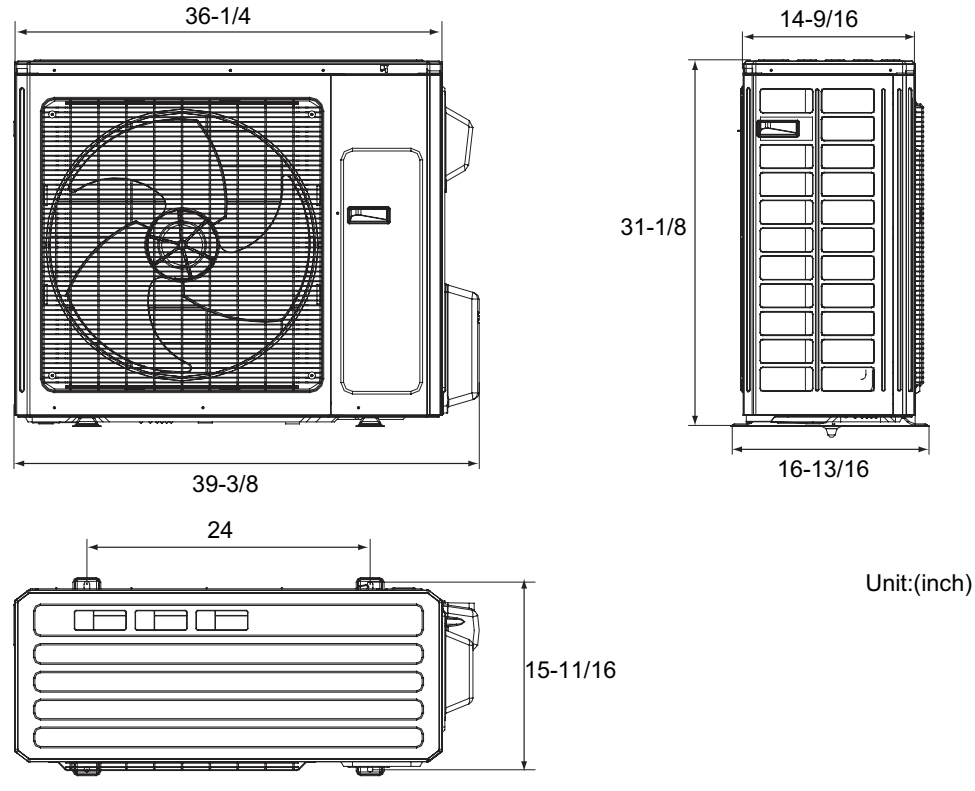
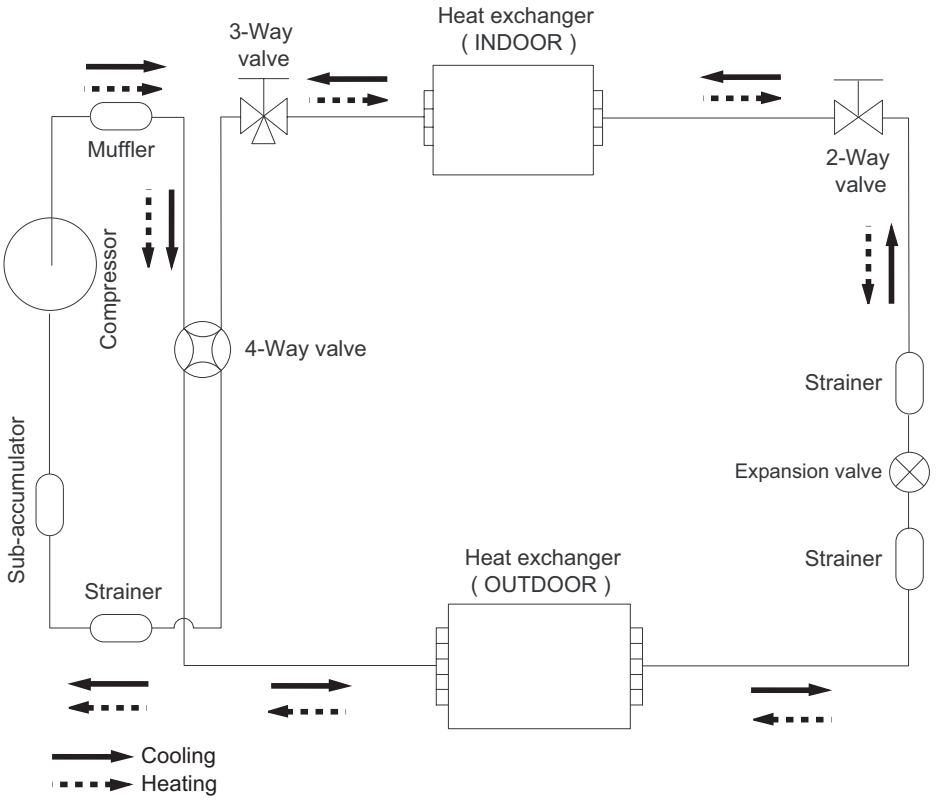


Unit:(inch)

4. Refrigerant System Diagram



Refrigerant pipe diameter
18K Unit
Liquid : 1/4" (6 mm)
Gas : 1/2" (12 mm)
24K Unit
Liquid : 1/4" (6 mm)
Gas : 5/8" (16 mm)

5. Schematic Diagram

5.1 Electrical Data

Meaning of marks

- **Indoor Unit**

Symbol	Color symbol	Symbol	Color symbol
WH	WHITE	**BN**	BROWN
YE	YELLOW	**BU**	BLUE
RD	RED	**BK**	BLACK
YEGN	YELLOW GREEN	⏚	GROUNDING

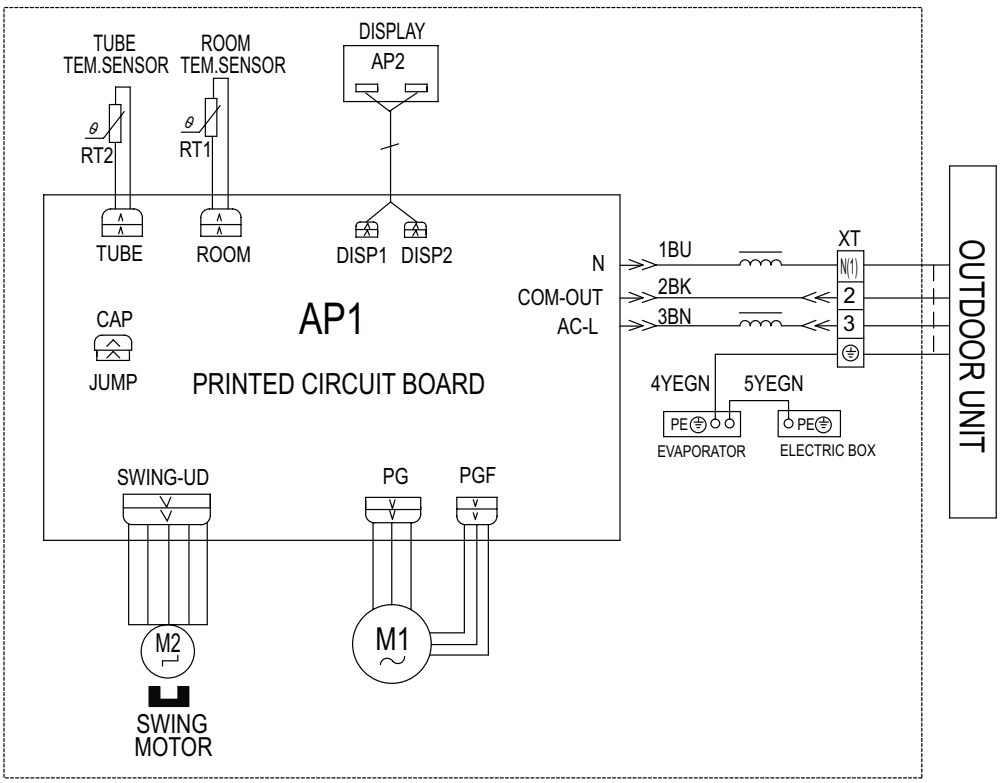
- **Outdoor Unit**

Symbol	Parts name	Symbol	Color symbol
L1 L2	REACTOR	**WH**	WHITE
YK	Four-way-Valve	**YE**	YELLOW
EKV	ELECTRONIC EXPANSION VALVE	**RD**	RED
SAT	OVERLOAD	**BN**	SAT OVERLOAD BN BROWN
COMP	COMPRESSOR	**BU**	BLUE
⏚	GROUNDING	**BK**	BLACK
L	REACTOR	**YEGN**	YELLOW GREEN

5.2 Electrical wiring

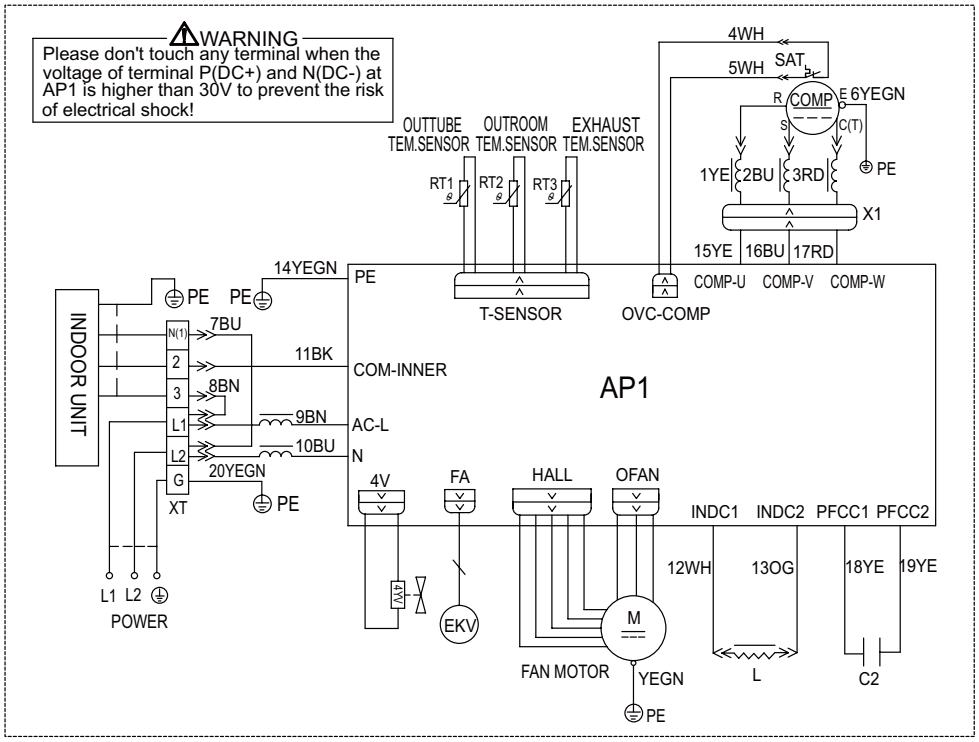
- **Indoor Unit**

Models GWH18AC-D3DNA1B/I GWH24AC-D3DNA1B/I



● Outdoor Unit

Models GWH18AC-D3DNA1B/O GWH24AC-D3DNA1B/O

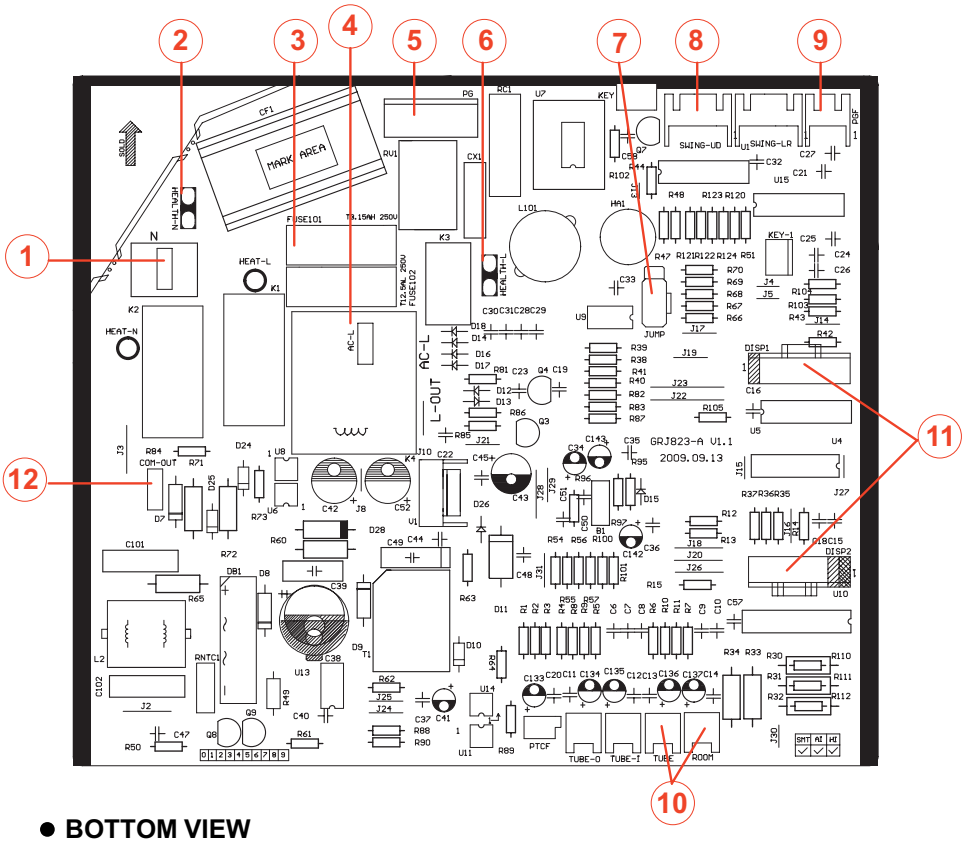


These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

5.3 Printed Circuit Board

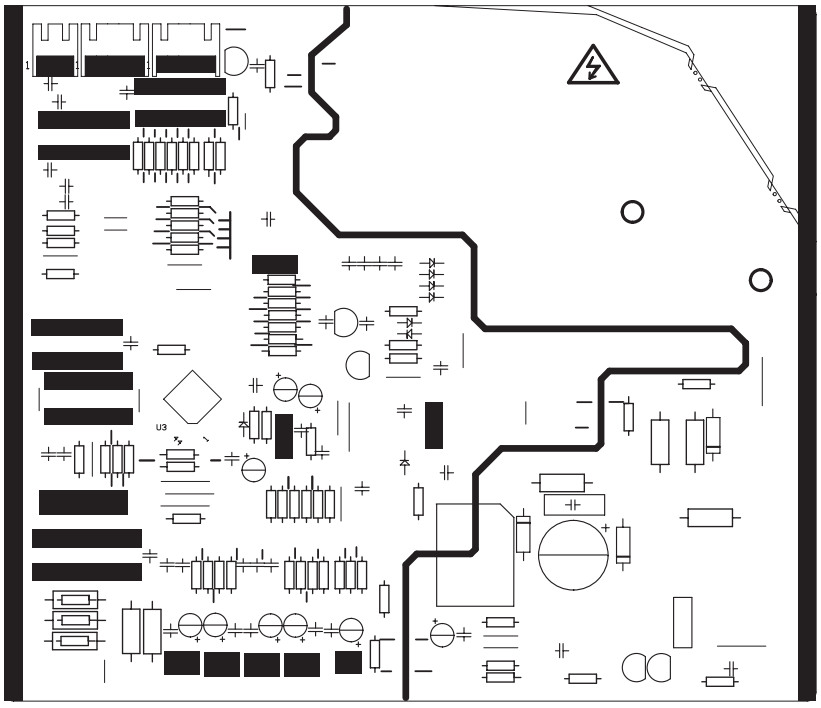
Indoor Unit

● **TOP VIEW**



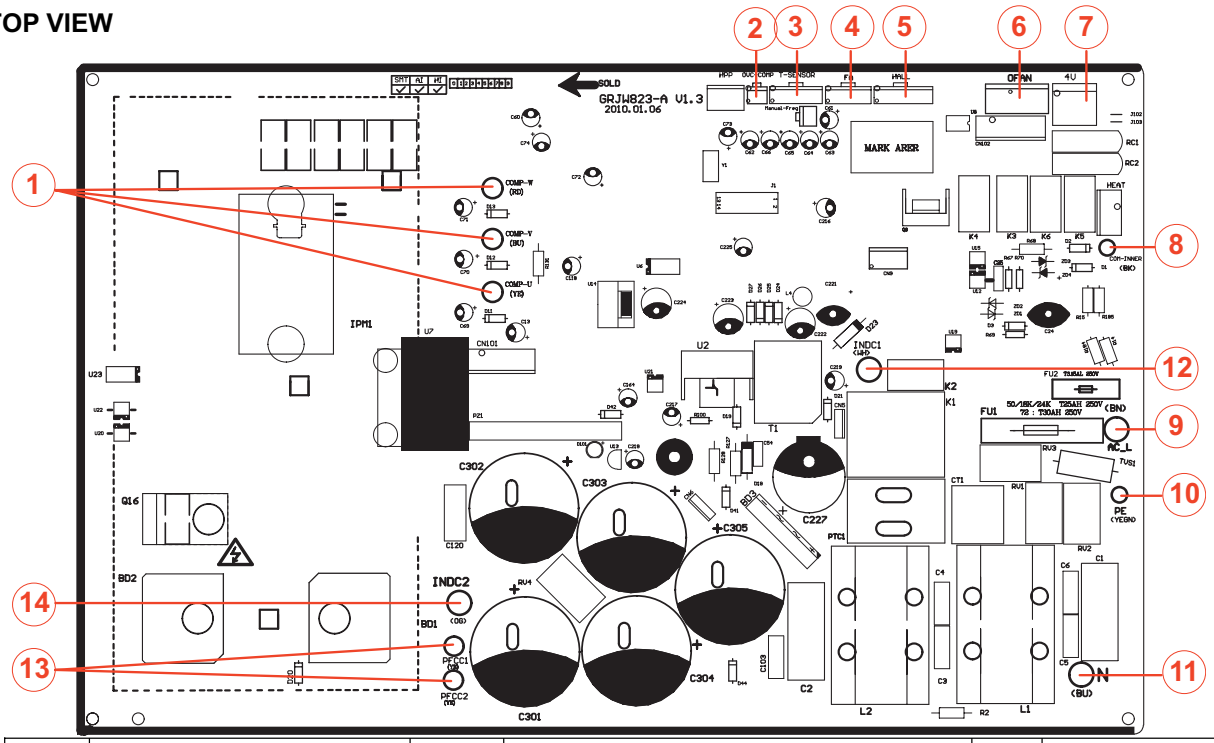
No.	Port Name
1	Neutral line
2	Neutral line of health function
3	Fuse
4	Live line
5	Power cable of PG motor
6	Live line of health function
7	Jumper cap
8	Link to up-down swing motor
9	Feedback line of PG motor
10	Temperature sensor
11	Display port
12	Port of communication with outdoor unit

● **BOTTOM VIEW**



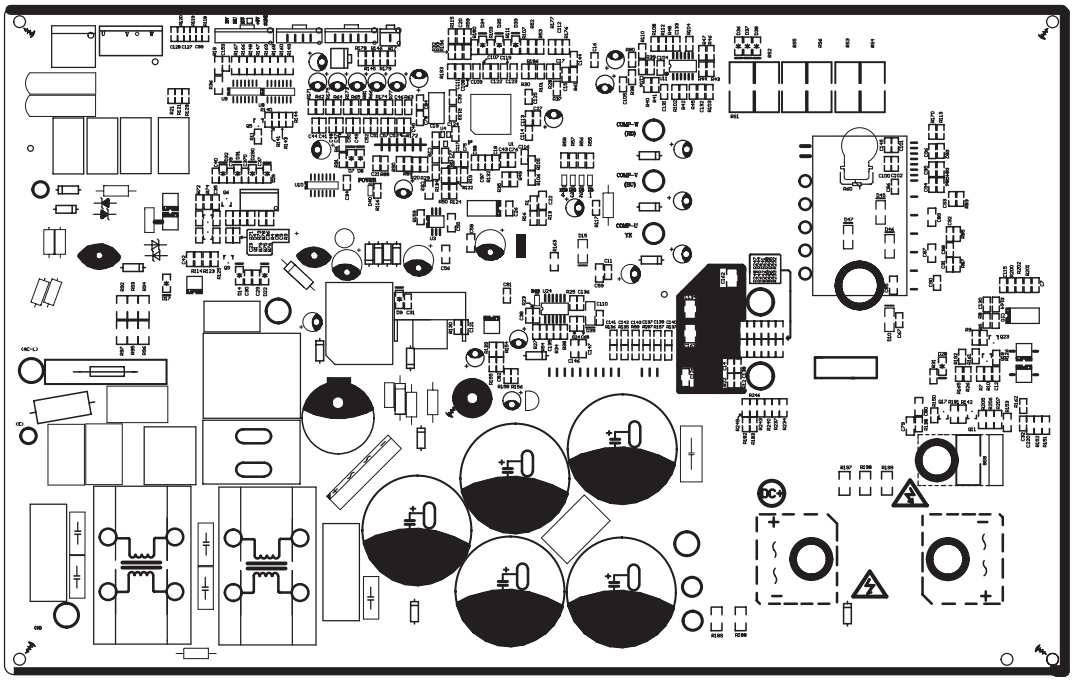
Outdoor Unit

● **TOP VIEW**



No.	Port Name	No.	Port Name	No.	Port Name
1	Compressor port	2	Compressor overload protector	3	Temperature sensor
4	Electronic expansion valve	5	Fan HALL port	6	Outdoor fan
7	4-way valve	8	Port of communication with indoor unit	9	Live line
10	Grounding	11	Neutral line	12	Reactor port 1
13	PFC capacitor port	14	Reactor port 2	15	

● **BOTTOM VIEW**

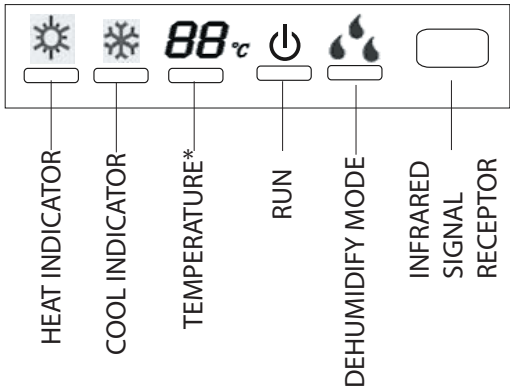


6.Function and Control

6.1 Unit Display Panels

NOTE: The display panel on the indoor unit can be turned on or off using the remote control . Press the SWING button twice to turn the display on and off. Some of the functions will appear on the display panel, on the remote control, or both.

On the Unit:



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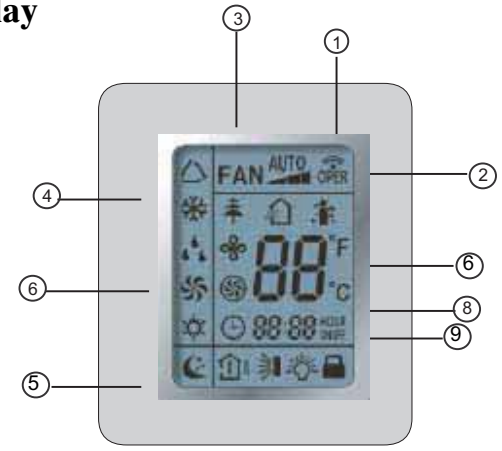
* The temperature readout will be replaced by an error code if there is a malfunction.

6.2 Remote Control Display



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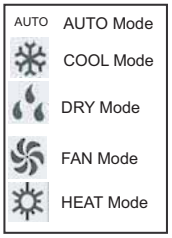
① **TRANSMISSION INDICATOR**: Illuminates when remote control transmits signals to the indoor unit.

② .**ON/OFF INDICATOR**: This symbol appears when the unit is turned on by the remote control, and disappear when the unit is turned off.

③ **FAN SPEED DISPLAY**: Indicates the set fan speed. AUTO is displayed when unit is running in AUTO mode.

④ **MODE DISPLAY**: Indicates the current operation mode "AUTO", "COOL", "DRY", "FAN ONLY", or "HEAT"



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⑤ **SLEEP DISPLAY**: Indicates unit is running in SLEEP mode.

⑥ **TEMPERATURE DISPLAY**: Temperature setting from 61°F (16°C) to 86°F (30°C) will be displayed. If FAN mode is selected, there will be no temperature displayed.

⑦ **SWING DISPLAY:** Indicates that louvers are moving continuously for better air distribution.

⑧ **CLOCK DISPLAY**: Indicates the current time (0 to 24 hours).

⑨ **TIMER DISPLAY**: Indicates that time ON, time OFF, or both is set.

NOTE: Symbols shown in this manual are for the purpose of demonstration. During actual operation, only the relevant symbols are displayed.

6.3 Remote Control Operations

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage.
Handle the control with care and avoid getting the control wet.

IMPORTANT: The remote control can operate the unit from a distance of up to 25 ft. (7.6 m) as long as there are no obstructions. This is one way communication only (from remote control to fan coil).

The remote control can perform the following basic functions:

- Turn the system ON and OFF
- Select operating mode
- Adjust room air temperature set point and fan speed
- Adjust airflow direction

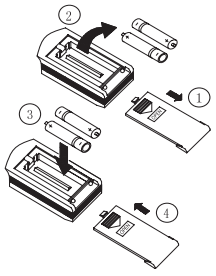
Refer to the *Remote Control Function* section for detailed description of all the capabilities of the remote control.

Battery Installation

Two AAA 1.5 v alkaline batteries (included) are required for operation of the remote control.

To install or replace batteries :

1. Slide the back cover off the control to open the battery compartment.
2. Remove old batteries if you are replacing the batteries.
3. Insert batteries. Follow the polarity markings inside the battery compartment.
4. Replace battery compartment cover.



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NOTE:

1. When replacing batteries, do not use old batteries or a different type battery. This may cause the remote control to malfunction.
2. If the remote is not going to be used for several weeks, remove the batteries. Otherwise battery leakage may damage the remote control.
3. The average battery life under normal use is about 6 months.
4. Replace the batteries when there is no audible beep from the indoor unit or if the Transmission Indicator fails to light.

Set the Clock

Before you start operating the air conditioner, set the clock on the remote control as outlined below. The clock panel on the remote controller will display the time regardless of whether the air conditioner is in use or not.

Initial Setting of the Clock:

After batteries are inserted in the remote control, the clock panel will display ”12:00” AM.

1. Push the CLOCK button once
   - “AM” will flash
2. Push the “TIME +” or “TIME –” button. Each time you press the button, the time moves forward or backward by one minute depending on which button you press.
   If you push the temperature button continuously, the time adjusts in increments of 10 minutes.
3. When the right time is achieved, press the CLOCK button once to set the time. The “AM” will stop flashing.
4. To readjust the Clock, Press the CLOCK button on the remote. The “AM” or “PM” will flash. Repeat steps 1 through 3.

NOTE: Note: The time of the CLOCK must be set before the AUTO-TIMER function will operate.

⚠ CAUTION

UNIT OPERATION HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Static electricity or other factors (voltage fluctuations) can cause the remote control clock to reset. If your remote control is reset (the time of ”12:00” flashing), set the clock before starting the unit.

Remote Control Operation - Quick Start

NOTE: When transmitting a command from the remote control to the unit, be sure to point the control toward the LED display on the front panel of the unit. The unit will confirm receipt of a command by sounding an audible beep.

1. Turn the unit on by pushing the **ON/OFF** button.
2. Select the desired mode by pushing the mode button.

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NOTE: Cool only units have no heat mode.

3. Select the temperature set point by pointing the control toward the unit and pressing the "TEMP +" or "TEMP -" temperature set point buttons until the desired temperature appears on screen.
4. Select the desired fan speed by pressing the **FAN SPEED** button to select desired fan speed.

NOTE: If unit is operating in Dry mode, low fan speed will be displayed and the fan speed cannot be changed.

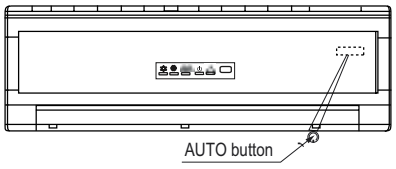
5. Set the airflow direction. When the unit is turned on, the louvers default to the cooling or heating position. The user can adjust the default louver position by pushing the "SWING" button. The louver will start to move. At this point, the user can have the louver moving continuously or stopped when the desired position is achieved by pushing the "SWING" button.

Emergency Operation

If the remote control is lost, damaged, or the batteries are exhausted, the **AUTO** button on the unit can be used to run the unit.

Open the front cover panel and press the **AUTO** button once briefly when the system is off.

To stop emergency operation, push the **AUTO** button once. The emergency operation can also be stopped by pushing the "ON/OFF", "CLOCK", "T-OFF", or "T-ON" twice.



A08300

The following occurs when the AUTO button is pushed:

- 77°F (25°C) will be displayed on display panel.
- Unit will run in FAN ONLY mode if return air temperature is between 68°F (20°C) and 77°F (25°C).
- Unit will run in HEATING if return air temperature is less than 68°F.
- Unit will run in COOLING if return air temperature is greater than 77°F (25°C).
- Fan speed will be set to AUTO
- SWING will be on.

REMOTE CONTROL FUNCTIONS

The remote control is the interface between the user and the high-wall systems. Commands are entered by the user to control the system. Any command that has been entered with the remote control will remain in the memory until it is changed by the user or the batteries are replaced.

NOTE: When entering commands, point the remote control in the direction of the LED display on the front panel. The ▲ will appear for a short period of time on the remote control when the command is entered. The unit will only emit an audible beep when the signals are received correctly.

On/Off Button

A08302

When the air conditioner is not in operation, the remote control will display the last set point and time.

- Press the On/Off button to start the unit.
  - The unit will start in the last operating mode and set point. The "OPER" indicator will appear. The "RUN" indicator on the display panel turns green.
- Press button On/Off to stop the unit.
  - The "RUN" indicator light on the display panel will turn red and the remote control will display the setpoint and time. "OPER" will disappear.

NOTE: If the On/Off button is pressed too soon after a stop, the compressor will not start for 3 minutes due to the inherent protection against frequent compressor cycling.

Selecting an Operating Mode

Use the Mode button to select one of the available modes.

A08303 /A08301

The selected mode will be displayed on the remote control and the appropriate light will illuminate on the display panel. When the unit is in AUTO, 77°F (25°C) will show on the display panel. There is no icon for "FAN ONLY" on the display panel.

Setting the Room Temperature Set Point

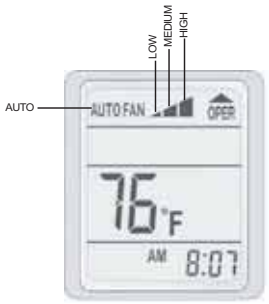
Pressing the “TEMP +” and “TEMP -” buttons will raise or lower the temperature.

The unit will confirm signal receipt with a beep and the value of the set temperature on the display, on the remote control, and on the front panel, will change accordingly.

The temperature can be set between 61°F (16°C) and 86°F (30°C).

NOTE: In Cooling mode, if the temperate selected is higher than the room temperature, the unit will not start. The same applies for the Heating mode if the selected temperature is lower than the room temperature.

Selecting the Fan Speed



A08304

The fan speed can be selected by pressing the “FAN” button.

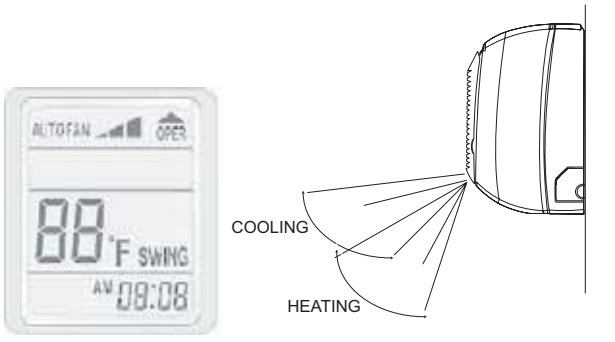
NOTE: When the unit is on, the fan will run continuously in cooling or heating. When in heating, there might be situations where the fan will slow down or shut off to prevent cold blow.

Selecting the Horizontal Direction Louver Position

When the unit is turned on, the louvers default to the cooling or heating position.

If the louver position is not providing adequate comfort due to room layout or where people are gathered, the user has two options:

1. Have the horizontal louvers move continuously. This is accomplished by pushing the “SWING” button. When this button is pushed, the “SWING” icon will appear on the remote control and the louvers will operate in a preset range as shown in the figure below.



A08307

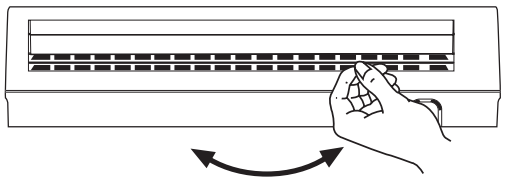
2. If a stationary position other than the default position is preferred, push the “SWING” button once and allow the louver to move to the desired position then push the “SWING” button again.

NOTE: Always use the remote control to adjust the louver position otherwise, abnormal operation may occur. If the louver is manually adjusted out if its range, turn the unit off and then on again.

Sometimes, in the heating mode, when the “SWING” button is pushed, the louvers will not start moving right away. This is due to the fact that the fan will not start running until the coil temperature is warm enough to prevent discomfort to the user by blowing cold air.

Selecting Vertical Direction of the Louver

The vertical louvers can be adjusted manually to direct the airflow to achieve the optimal comfort in the space.

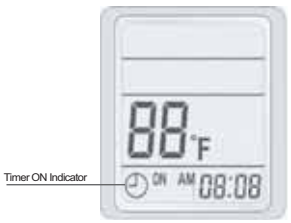


A07543

Timer Function

TIMER ON (to start the unit) and TIMER OFF (to stop the unit) can be used separately or together. The clock on the remote control must be set before using this function.

Timer ON only



A08305

This function will allow the unit to start automatically at the set time. The TIMER ON can be set while the unit is on or off.

To set the TIMER ON function, perform the following:

1. Push the “T-ON” button once.
2. The timer indicator will appear on the remote control with “ON” flashing.
3. Push the “TIME -” or “TIME +” until the desired on time is reached.

NOTE: Pressing the “TIME -” or “TIME +” will decrease or increase the time in 1 minute increments.
Pressing the “TIME -” or “TIME +” continuously will decrease or increase the time in 10 minute increments.

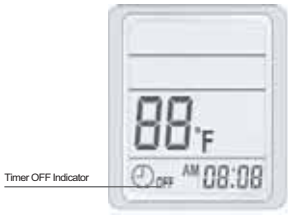
4. Push the “T-ON” again. The “ON” icon will stop blinking and the time at which the unit will start is set.

The “T-ON” time will be stored in memory indefinitely until it is cancelled by the user by pushing the “CANCEL” button or the remote control batteries are replaced.

If the unit is running and the “T-ON” set time is reached, the unit will continue operating normally.

NOTE: When the unit is shut off by the user using the “ON/OFF” button, and if the “T-ON” is set, the following will be displayed on the remote control.
- Set Point
- Time
- “TIME ON” icon
On the display panel, the operation light will turn red.
When the “T-ON” is reached, the display on the remote does not change, and the unit is running as indicated by the operation light on the front cover turning green. To get display on the remote, push the “ON/OFF” button once.

Timer OFF only



A08306

This function will allow the unit to stop automatically at the set time. The timer can be set while the unit is on or while it is off.

To set the "TIMER OFF" function, perform the following:

1. Push the "T-OFF" button once.
2. The "TIMER" indicator will appear on the remote control with "OFF" flashing.
3. Push the "TIME –" or "TIME +" button until the desired ON time is reached.

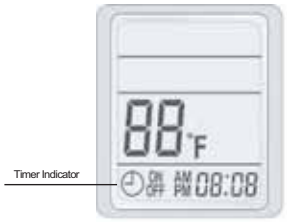
NOTE: Pressing the "TIME –" or "TIME +" will decrease or increase the time in 1 minute increments.
Pressing the "TIME –" or "TIME +" continuously, will decrease or increase the time in 10 minute increments.

4. Push the "T-OFF" button again, the "OFF" icon will stop blinking and the time at which the unit will turn off is set.

The "T-OFF" time will be stored in memory indefinitely until is is cancelled by pushing the the "CANCEL" button or the batteries are replaced in the remote control.

If the unit is running and the "T-OFF" set time is reached, the unit will turn off and the operation indicator light on the front panel will turn red. The display on the remote control will remain the same as when the unit was running. To turn the unit on again, push the "ON/OFF" button twice. The operation indicator light on the front panel will turn green.

Timer ON and Timer OFF



A08308

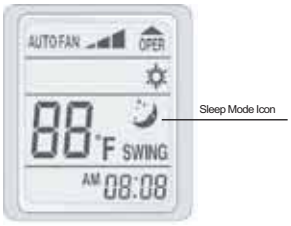
Use both functions as described in "TIMER ON" and "TIMER OFF" sections to program the unit to turn on and shut off at specified times. Times will be stored in memory until cancelled by user or the remote control batteries are replaced.

Sleep Mode

This mode is used to conserve energy and can be used when the unit is in the COOL, HEAT or AUTO mode only.

Cool Mode

- Push the SLEEP button. The SLEEP display will appear on the remote control.



A08309

- After 1 hour the set point will be raised by 1.8°F (1°C).
- After another hour, the set point will be raised by another 1.8°F (1°C) and the fan will run in low speed.
- The SLEEP mode will be cancelled when the SLEEP button is pushed again.

Heat Mode

- Same as cooling mode but set points will be lowered by 1.8°F (1°C) and the HEAT icon will disappear from the display panel.

Time Delay

If the On/Off button is pressed too soon after a stop, the compressor will not start for 3 minutes due to the inherent protection against frequent compressor cycling. The unit will only emit an audible beep when the signals are received correctly.

Heating Features

If the unit is in the heating mode, there will be a delay when the fan starts. The fan will start only after the coil is warmed up to prevent cold blow.

Defrost Operation

In heating mode, if the outdoor coil is frosted, the indoor fan and outdoor fan will turn off while system removes the frost on the outdoor coil. "H1" will be displayed on the display panel on the front cover of the unit.

The system will automatically revert to normal operation when frost is removed from the outdoor unit, and "H1" will disappear.

Auto Start

If the power fails while the unit is operating, the unit stores the operating condition, and it will start operation automatically under those conditions when the power is restored.

CONTROL SYSTEM

The 53GXC(Q) units are equipped with microprocessors in the indoor and outdoor units. They perform the following two functions:

1. Provide safety for the system
2. Control the system and provide optimum levels of comfort and efficiency.

3 Minute Time Delay

In order to protect the compressor, there is a 3 minute delay on break even if the control is calling for heating or cooling.

Indoor Coil Freeze Protection

When the unit is running in the COOL or DRY MODE, the indoor coil can freeze due to any of the following:

- Low system charge
- Reduced indoor airflow
- Restricted refrigerant flow
- Low ambient temperature (outdoor)
- Low load (indoor)

The indoor coil thermistor monitors the coil temperature continuously. Any time the coil temperature drops below 30.2°F (-1°C), the compressor and the outdoor fan (30 seconds later) will be switched off until the coil temperature rises above 42.8°F (6°C) and the compressor was off for a minimum of 3 minutes.

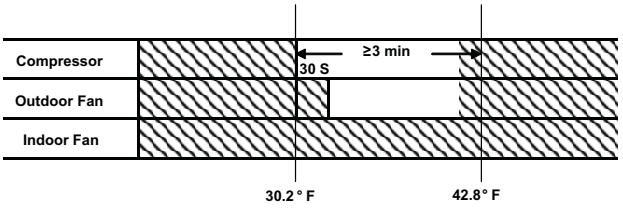


Fig. 14 – Coil Freeze Protection

High Compressor Discharge Temperature

The compressor discharge temperature can be high due to any of the following:

- Low refrigerant charge
- Blocked capillary

The compressor discharge line thermistor continuously monitors the temperature and communicates with the microprocessor. Depending on the temperature measured, the compressor will be allowed to increase the frequency to meet the load or is forced to run the current or reduced frequency. If the temperature gets excessively high, the compressor will be de-energized as shown below:

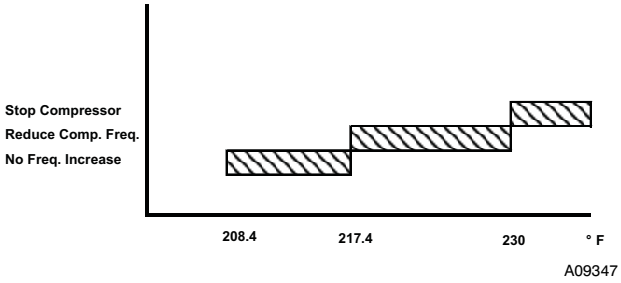


Fig. 15 – Compressor Gas Discharge Temperature Protection

When the compressor discharge temperature drops below 194°F, the unit will resume normal operations.

Low Voltage Protection

If the incoming voltage is below the minimum allowed, E5 will be displayed on the front panel of the indoor unit.

Condenser High Temperature Protection

Condenser high temperature can occur due to any of the following conditions:

- High outdoor ambient
- Outdoor fan blocked
- Outdoor coil blocked

The outdoor coil thermistor continuously monitors the temperature and communicates with the microprocessor. Depending on the temperature measured, the compressor will be allowed to increase the frequency if needed to meet the load or is forced to run at the current or reduced frequency. If the temperature gets excessively high the compressor will be de-energized as shown below:

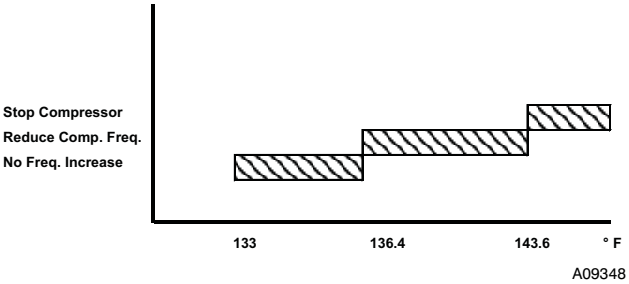


Fig. 16 – High Temperature Protection

When the outdoor coil temperature drops to 123.8°F, the unit will resume normal operations.

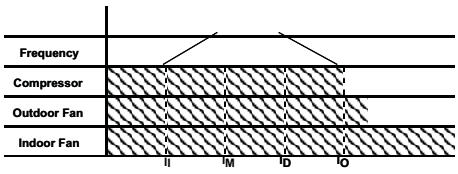
NOTE: In heating the indoor fan is de-energized 60 seconds after the compressor is de-energized.

Compressor Over Current Protection

Over current protection can result due to any of the following:

- The ambient temperature is too high
- Locked rotor on the compressor
- Blockage in the refrigeration circuit (capillary tubes for example)
- Outdoor air is blocked or restricted

The compressor current is monitored continuously. Based on the amp draw measured, the microprocessor will allow the compressor to increase frequency, maintain frequency, drop frequency, and eventually de-energized the compressor if excessive amps are experienced.



Current	9K	12K
I_I	6	7
I_M	7	8
I_D	8	9
I_O	9	10

A09349

Fig. 17 – Overcurrent Protection

IPM Module Protection

This can be caused by any of the following:

- Loss of cooling to the heat sink
- High ambient temperatures
- Low voltage
- Loose screws fastening the board to the heat sink

When this occurs, H5 is displayed on the LED display on the front panel of the indoor unit.

SEQUENCE OF OPERATION

Interface

A wireless remote control, supplied with the unit, is the interface between the fan coil and the user. The wireless remote control has the following characteristics:

- Dedicated controllers for °C or °F. Each indoor units comes with two remotes that are clearly labeled for the appropriate temperature scale.
- The remote control range is from 61°F (16.1°C)to 86°F (30°C).
- The same remote is used for both cooling only and heat pump units
- The wireless remote control range is 25 ft (7.6 m).
- The same remote can be used to control more than one unit.
- If the remote control is lost, damaged, or the batteries are exhausted, the system can be operated using the manual button located under the front panel

MODES OF OPERATION

The units have five main operating modes:

1. Fan only
2. Cooling
3. Heating (heat pump only)
4. Auto
5. Dry (Dehumidification)

The units also have the manual mode that allows the unit to be operated without the remote control.

Fan Only Mode

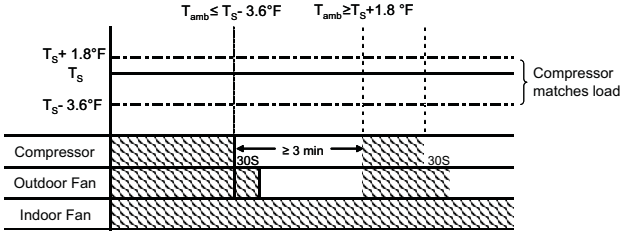
In this mode, the system circulates the room air without changing the room air temperature.

Cooling Mode

In this mode, the system cools and dries the room air with the fan running continuously, either at a selected fan speed or Auto fan speed. The fan runs even when the compressor cycles off. This feature enhances room comfort and efficiency of the system.

Compressor, Outdoor Fan Operations, and Indoor fan Operation

As shown below, the compressor and outdoor fan motor cycle on and off based on the conditions of the set point and the room temperature. The indoor fan runs continuously.

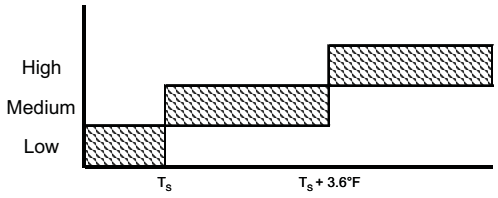


A09249

Fig. 18 – Cooling Mode

Indoor Fan Operation - Cooling

When in cooling mode, the fan runs continuously either at the chosen set speed, or in Auto mode, where the speed is determined by the microprocessor based on the difference between the room temperature and the temperature set point as shown below:



A09250

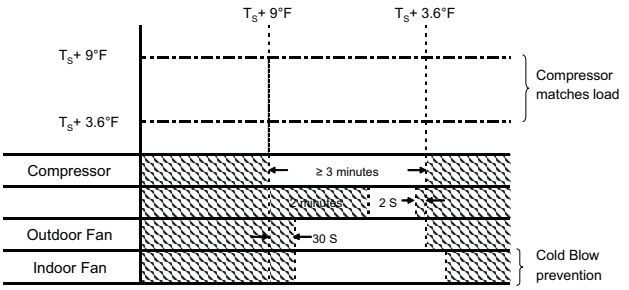
Fig. 19 – Auto Fan - Cool Only Mode

Heating Mode

In this mode, the system heats the room air with the indoor fan running at either the selected speed or on Auto. As the cooling mode, the indoor fan will run continuously unless interrupted by the cold blow algorithm. This algorithm will not allow the fan to run if the indoor coil temperature drops below a preset value.

Compressor and fan operation

As shown below, the compressor and outdoor fan cycle on and off based on the actual room temperature versus the set point. The outdoor fan is de-energized 30 seconds after the compressor is de-energized. The reversing valve is energized in heating and will stay energized for 2 minutes after the compressor is de-energized. The reversing valve is energized 2 seconds before the compressor is energized.

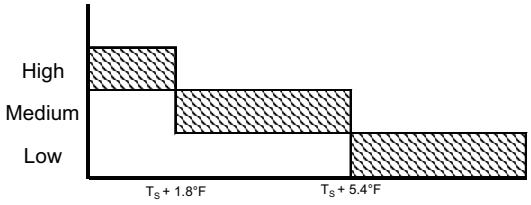


A09252

Fig. 20 – Heat Mode

Indoor Fan Operation – Heating

When in heating mode, as long as the coil temperature is above the threshold for cold blow prevention, the fan runs continuously either at the chosen set speed, or in Auto mode, where the speed is determined by the microprocessor based on the difference between the room temperature and the temperature set point as shown below:



A09254

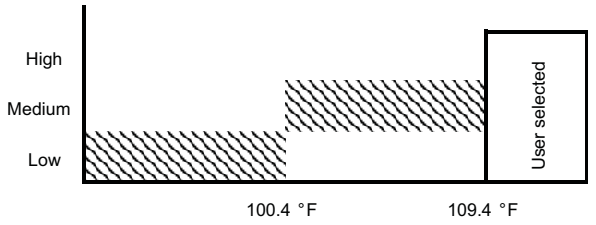
Fig. 21 – Auto Fan - Heat Mode

Cold Blow Prevention

This function prevents the cold air from blowing into a space when in heat mode. When there is a demand for heating one of the following conditions occurs:

- If the indoor coil temperature is < 106°F (41.1°C) and the room temperature is < 75°F (23.4°C), there will be a 3 minute time delay before the indoor fan runs at low speed for 5 minutes.
- If the indoor coil temperature is ≥106°F (41.1°C) and the room temperature is ≥75°F (23.4°C, the indoor fan will run at low speed for 1 minute.

After one of the above steps occur, the indoor fan speed will be determined as shown below:

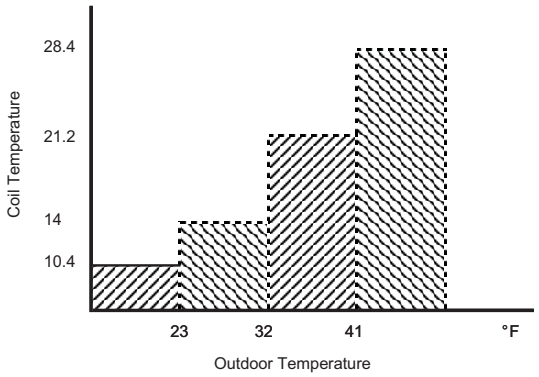


A09354

Fig. 22 – Cold Blow Prevention

Defrost

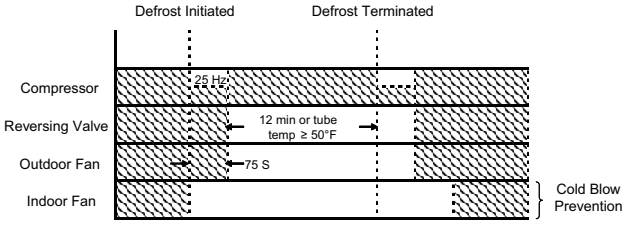
Defrost is controlled by the microprocessor and will occur if the unit operated in the heating mode for at least 45 minutes and any of the conditions below lasted for more than 3 minutes.



A09355

Fig. 23 – Defrost

The defrost cycle will terminate 12 minutes after the initiation of the defrost cycle or when the coil temperature is ≥50°F (10°C). The defrost algorithm is shown below:



A09256

Fig. 24 – Defrost (continued)

AUTO MODE

When the Auto setting is selected, at startup the unit will run in cooling, fan only, or heating based on the room temperature at shown below.

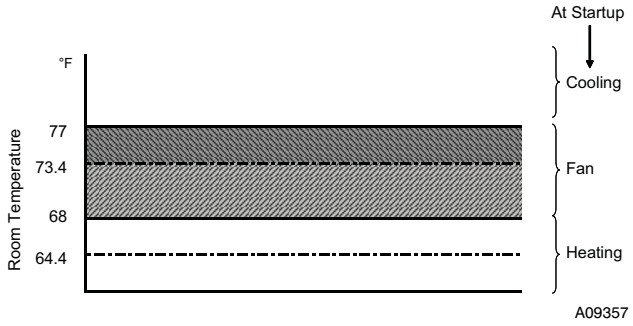


Fig. 25 – AUTO Mode

After startup and if the unit is running in cooling, the compressor will be de-energized when the room temperature is 73.4°F (23°C). If the unit was running in heating, the compressor will be de-energized when the room temperature is 73.4°F (23°C).

There is a 6 minute time delay before modes are switched.

SLEEP MODE

Additional energy savings can be realized by selecting the Slee mode. When the sleep setting is selected, the temperature set poin is adjusted automatically as shown below:

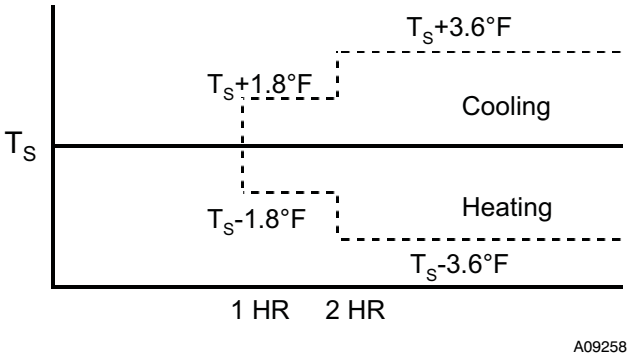


Fig. 26 – SLEEP Mode

7. Installation Manual

7.1 Notices for Installation

Caution

Please contact your Gree authorized service center when the unit is to be relocated.

Installation Site Instructions

- Proper installation site is vital for correct and efficient operation of the unit. Avoid the following sites where:
- strong heat sources, vapours, flammable gas or volatile liquids are emitted.
- high-frequency electro-magnetic waves are generated by radio equipment,
- welders and medical equipments are placed.
- salt-laden air prevails (such as close to coastal areas).
- the air is contaminated by industrial vapours and oils.
- the air contains sulfer gas such as in hot spring zones.
- the air has deteriorated or there is high possibility of corrosion.

Installation Site of Indoor Unit

Install the indoor unit:

1. Where airflow is not blocked and cool air spreads over the entire room.
2. Where the condensing water can be easily drained out, and where it is easily connected to outdoor unit.
3. Where it is out of reach of children.
4. Select the place where the wall is strong enough to withstand the full weight and vibration of the unit.
5. Be sure to leave enough space to allow access for routine maintenance. The installation site should be 98inch or more above the floor.
6. Where it is 39 inch or more away from TV set or any other electric appliances.
7. Select a place where the filter can be easily taken out.
8. Make sure that the indoor unit is installed in accordance with installation dimension instructions.
9. Do not use the unit in the laundry or around the swimming pool etc.

Installation Site of Outdoor Unit

Install the outdoor unit:

1. Where noise and outflow air emitted by unit will not annoy neighbors.
2. Where there is sufficient ventilation.
3. Where there is no obstruction blocking the air inlet or outlet.
4. Where it is able to withstand the full weight and vibration.
5. Where it is dry and the unit is not exposed to direct sunshine or strong wind.
6. Make sure that the outdoor unit is installed in accordance with the installation instructions, and is convenient for maintenance and repair.
7. Where the height difference between indoor and outdoor units is within 16ft, and the length of the connecting tubing does not exceed 32ft.
8. Where it is out of reach of children.
9. Where the unit does not have negative impact on pedestrian or city amenity.

Safety Precautions for Electrical Wiring

1. A dedicated power supply circuit should be used in accordance with local electrical safety regulations.
2. Don't drag the power cord.
3. The unit should be reliably earthed and connected to an exclusive earth device by the professionals.
4. The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overloading.
5. The minimum distance between the unit and combustive surface is 5ft.
6. The appliance shall be installed in accordance with national wiring regulations.
7. An all-pole disconnection switch having a contact separation of at least 1/8inch in all poles should be connected in fixed wiring.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

- Be sure to comply with local codes while running wire from indoor unit to outdoor unit.
- Every wire must be connected firmly. Loose wiring may cause terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, be sure all wiring is tightly connected.
- No wire should be allowed to touch refrigerant tubing, compressor or any moving parts.
- Disconnecting means must be provided and shall be located within sight and readily accessible from the air conditioner.
- Connecting cable with conduit shall be routed through hole in the conduit panel.

NOTE: Polarity of power wires must match original connection on outdoor unit.

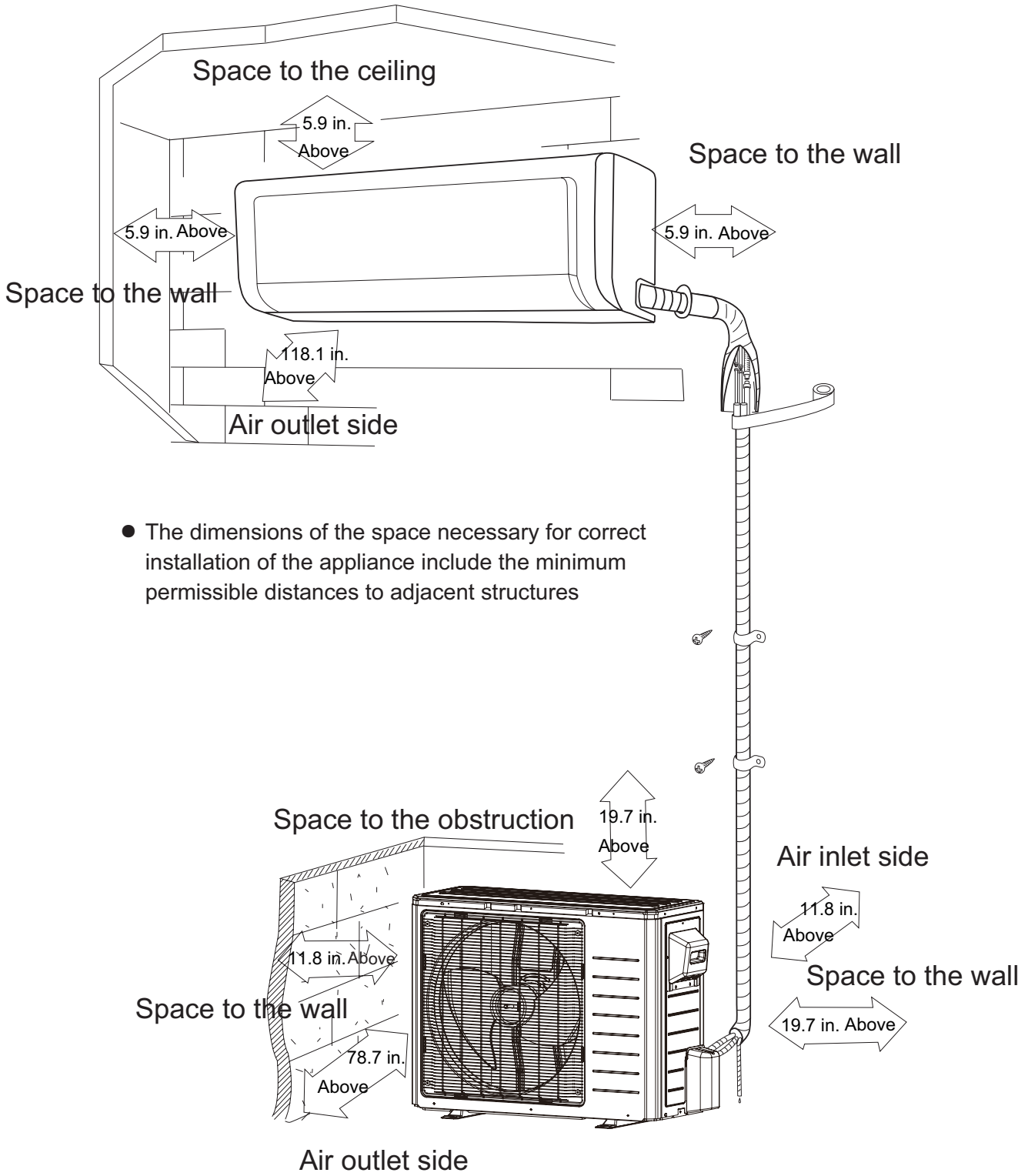
Earthing requirements

1. Air conditioner is type I electric appliance. Please ensure the the unit is reliably earthed.
2. The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.
3. The earth resistance should accord to the national criterion.
4. The user's power must have reliable earthing terminal. Please don't connect the earthing wire with the following

   ① Water pipe ② Gas pipe ③ Contamination pipe :

   ④ Other place that professional personnel consider is unreliable
5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Drawing



- The dimensions of the space necessary for correct installation of the appliance include the minimum permissible distances to adjacent structures

7.3 INDOOR UNIT INSTALLATION

INSTALL MOUNTING PLATE

1. Carefully remove the mounting plate, which is attached to the back of the indoor unit.
2. The mounting plate should be located horizontally and level on the wall. All minimum spacings shown in Fig. 6 and Fig. 7 should be maintained.
3. If the wall is block, brick, concrete or similar material, drill .2" (5 mm) diameter holes and insert anchors for the appropriate mounting screws.
4. Attach the mounting plate to the wall.

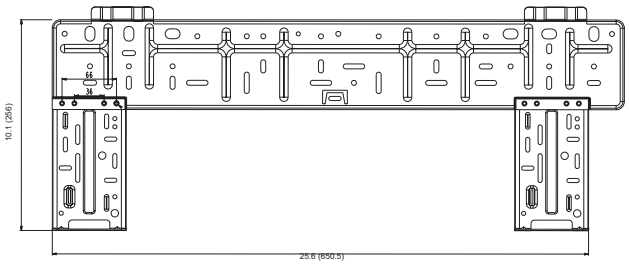


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Fig. 6 – 18k Mounting Plate Spacing

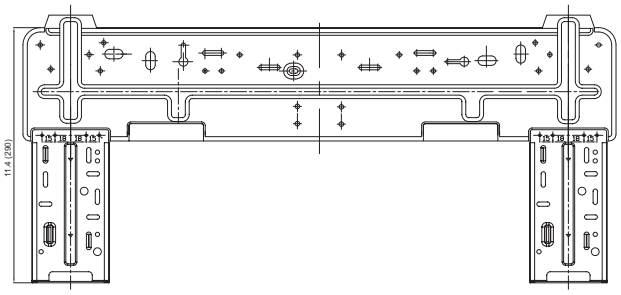

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Fig. 7 – 24k Mounting Plate Spacing

DRILL HOLE IN WALL FOR INTERCONNECTING PIPING, DRAIN AND WIRING

Refrigerant Line Routing

The refrigerant lines may be routed in any of the four directions shown in Fig. 8 (a) and (b).

For maximum serviceability, it is recommended to have refrigerant line flare connections and the drain connection on the outside of the wall that the fan coil is mounted on.

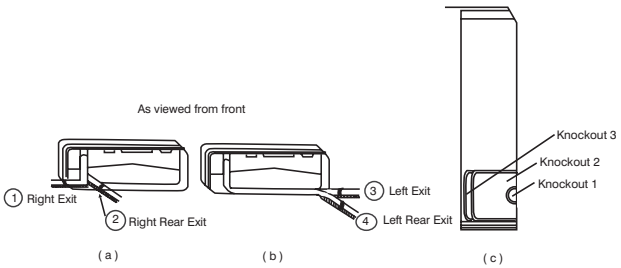

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Fig. 8 – Refrigerant Line Routing

If piping is going through the back:

1. Determine pipe hole position using the mounting plate as a template. Drill pipe hole diameter per chart below. The outside pipe hole is 1/2-in. (13 mm) min. lower than inside pipe hole, so it slants slightly downward (see Fig. 9).
   If piping is going to exit from the left rear, it is recommended to field-fabricate piping extensions to get the flare connections to the outside of the wall.

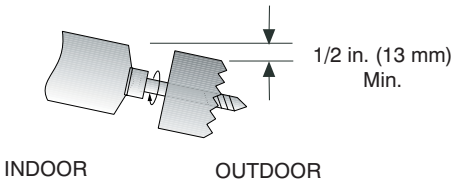

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Fig. 9 – Drill Holes

Model Size	Hole Diameter in. (mm)
9k, 12k and 18k	2.56 (65)
24k	3.75 (95)

If piping is going through the right or left side:

1. Use a small saw blade to carefully remove the corresponding plastic covering on side panel and drill the appropriate size hole where the pipe is going through the wall. See Fig. 8(c).
2. Remove knockout 1 if you are running only the wiring. Remove knockout 1 and 2 or knockout 1, 2 and 3 if you are running both piping and wiring through the side of the unit.

7.4 OUTDOOR UNIT INSTALLATION

1. Use a rigid base to support unit in a level position.
2. Locate outdoor unit and connect piping and wiring.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Excessive torque can break flare nut depending on installation conditions.

Piping Connections to Outdoor Unit

IMPORTANT: Use refrigeration grade tubing ONLY. No other type of tubing may be used. Use of other types of tubing will void manufacturer's warranty.
Make sure there is enough piping to cover the required length between the outdoor and indoor unit.

Piping Guide:

- Do not open service valves or remove protective caps from tubing ends until all the connections are made.
- Bend tubing with bending tools to avoid kinks and flat spots.
- Keep the tubing free of dirt, sand, moisture, and other contaminants to avoid damaging the refrigerant system.
- Avoid sags in the suction line to prevent the formation of oil traps. Insulate each tube with minimum 3/8-in. (10 mm) wall thermal pipe insulation. Inserting the tubing into the insulation before making the connections will save time and improve installation quality.
  1. Remove service valve cover if provided with unit.
  2. Cut tubing with tubing cutter.
  3. Install correct size flare nut onto tubing and make flare connection.
  4. Apply a small amount of refrigerant oil to the flare connection on the tubing.
  5. Properly align tubing in with service valve.
  6. Tighten flare nut and finish installation using two wrenches as shown in Fig. 10.

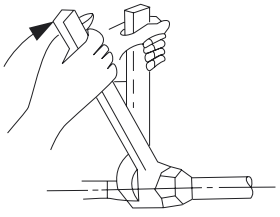

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Fig. 10 – Tighten Flare Nut

INSTALL ALL POWER AND INTERCONNECTING WIRING TO OUTDOOR UNIT

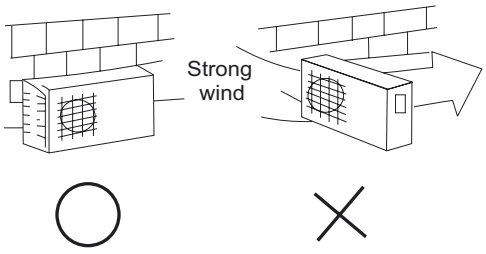

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Fig. 11 – High Wind Installation

Outdoor Unit Wiring Connections

1. Mount outdoor power disconnect.
2. Run power wiring from main box to disconnect per NEC and local codes. Set outdoor unit in place.
3. Remove field wiring cover from unit by removing screws.
4. Connect conduit to the conduit panel. (See Fig. 12)
5. Properly connect both power supply and control lines to terminal block per the connection diagram.
6. Ground unit in accordance with NEC and local electrical codes.
7. Use lock nuts to secure conduit.
8. Reinstall field wiring cover.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

- Be sure to comply with local codes while running wire from indoor unit to outdoor unit.
- Every wire must be connected firmly. Loose wiring may cause terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, be sure all wiring is tightly connected.
- No wire should be allowed to touch refrigerant tubing, compressor or any moving parts.
- Disconnecting means must be provided and shall be located within sight and readily accessible from the air conditioner.
- Connecting cable with conduit shall be routed through hole in the conduit panel.

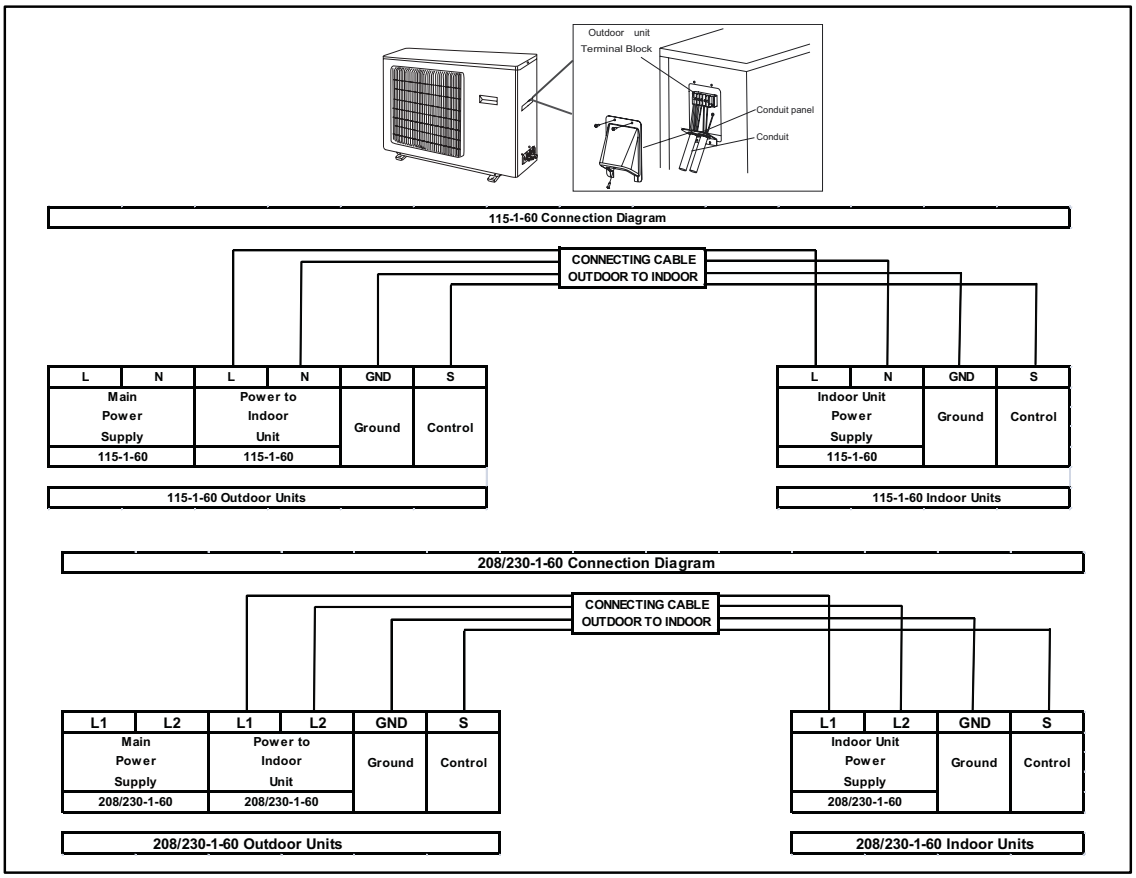

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Fig. 12 – Field Wiring

INSTALL ALL POWER, INTERCONNECTING WIRING, AND PIPING TO INDOOR UNIT.

1. Run interconnecting piping and wiring from outdoor unit to indoor unit.
2. Pass interconnecting cable through hole in wall (outside to inside).
3. Lift indoor unit into position and route piping and drain through hole in wall (inside to outside). Fit interconnecting wiring into back side of indoor unit.
4. Hang indoor unit on upper hooks of wall mounting plate (as shown in Fig. 13)

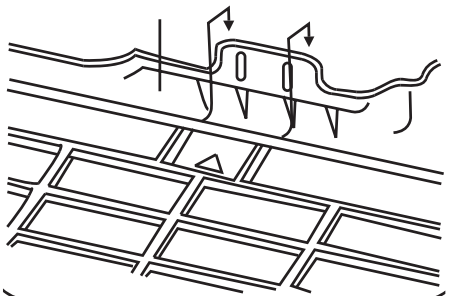

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Fig. 13 – Hanging Indoor Unit

5. Open front cover of indoor unit and remove field wiring terminal block cover (see Fig. 14)

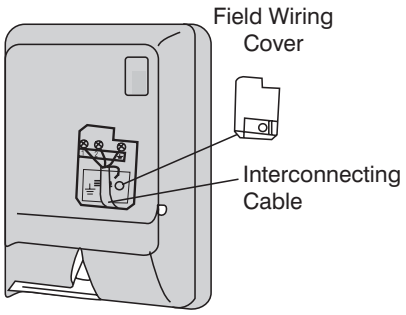

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Fig. 14 – Field Wiring Cover

6. Pull interconnecting wire up from back of indoor unit and position in close to the terminal block on indoor unit.
7. Push bottom of indoor unit onto mounting plate to complete wall mount.
8. Connect wiring from outdoor unit per connection diagram (see Fig. 12).

NOTE: **Polarity of power wires must match original connection on outdoor unit.**

9. Replace field wiring cover and close front cover of indoor unit.
10. Connect refrigerant piping and drain line outside of indoor unit. Refer to Fig. 10 for proper installation of flare connections. Complete pipe insulation at flare connection then fasten piping and wiring to the wall as required. Completely seal the hole in the wall.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Never use the system compressor as a vacuum pump.

Refrigerant tubes and indoor coil should be evacuated using the recommended deep vacuum method of 500 microns. The alternate triple evacuation method may be used if the procedure outlined below is followed. Always break a vacuum with dry nitrogen.

SYSTEM VACUUM AND CHARGE

Using Vacuum Pump

1. Completely tighten flare nuts A, B, C, D, connect manifold gage charge hose to a charge port of the low side service valve. (See Fig. 15.)
2. Connect charge hose to vacuum pump.
3. Fully open the low side of manifold gage. (See Fig. 16)
4. Start vacuum pump
5. Evacuate using either deep vacuum or triple evacuation method.
6. After evacuation is complete, fully close the low side of manifold gage and stop operation of vacuum pump.
7. The factory charge contained in the outdoor unit is good for up to 25 ft. (8 m) of line length. For refrigerant lines longer than 25 ft (8 m), add 0.1 oz. per foot of extra piping up to the maximum allowable length.
8. Disconnect charge hose from charge connection of the low side service valve.
9. Fully open service valves B and A.
10. Securely tighten caps of service valves.

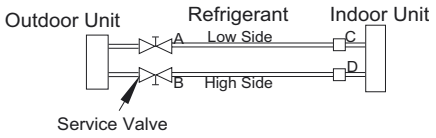

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Fig. 15 – Service Valve

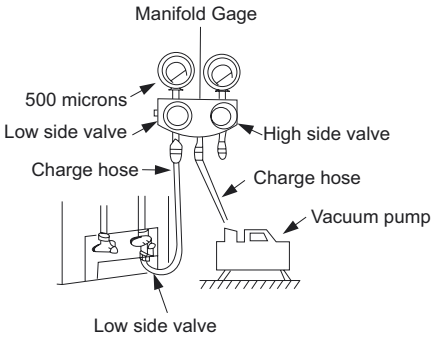

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Fig. 16 – Manifold

Deep Vacuum Method

The deep vacuum method requires a vacuum pump capable of pulling a vacuum of 500 microns and a vacuum gage capable of accurately measuring this vacuum depth. The deep vacuum method is the most positive way of assuring a system is free of air and liquid water. (See Fig. 17)

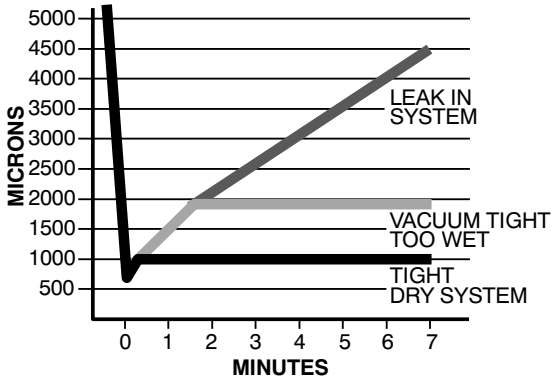

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Fig. 17 – Deep Vacuum Graph

Triple Evacuation Method

The triple evacuation method should only be used when vacuum pump is only capable of pumping down to 28 in. of mercury vacuum and system does not contain any liquid water.
Refer to Fig. 18 and proceed as follows:

1. Pump system down to 28 in. of mercury and allow pump to continue operating for an additional 15 minutes.
2. Close service valves and shut off vacuum pump.
3. Connect a nitrogen cylinder and regulator to system and open until system pressure is 2 psig.
4. Close service valve and allow system to stand for 1 hr. During this time, dry nitrogen will be able to diffuse throughout the system absorbing moisture.
5. Repeat this procedure as indicated in Fig. 18. System will then be free of any contaminants and water vapor.

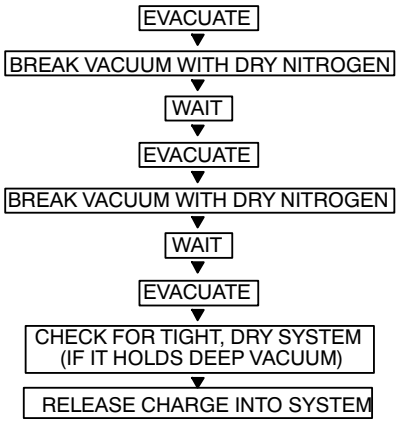

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Fig. 18 – Triple Evacuation Method

Final Tubing Check

IMPORTANT: Check to be certain factory tubing on both indoor and outdoor unit has not shifted during shipment. Ensure tubes are not rubbing against each other or any sheet metal. Pay close attention to feeder tubes, making sure wire ties on feeder tubes are secure and tight.

START-UP

Test Operation

Perform test operation after completing gas leak and electrical safety check.

1. Push the “ON/OFF” button on Remote Control to begin testing.

NOTE: A protection feature prevents the air conditioner from being activated for approximately 3 minutes.

2. Push MODE button, select COOLING, HEATING, FAN mode to check if all functions work correctly.

SYSTEM CHECKS

1. Conceal the refrigerant and condensate lines where possible.
2. Make sure that the drain line slopes downward along its entire length.
3. Ensure all refrigerant and condensate lines and connections are properly insulated.
4. Fastenrefrigerant and condensate lines to the outside wall, when possible.
5. Seal the hole through which the cables and refrigerant and condensate lines pass.

INDOOR UNIT

1. Do all Remote Control buttons function properly?
2. Do the display panel lights work properly?
3. Does the air deflection louver function properly?
4. Does the drain work?

OUTDOOR UNIT

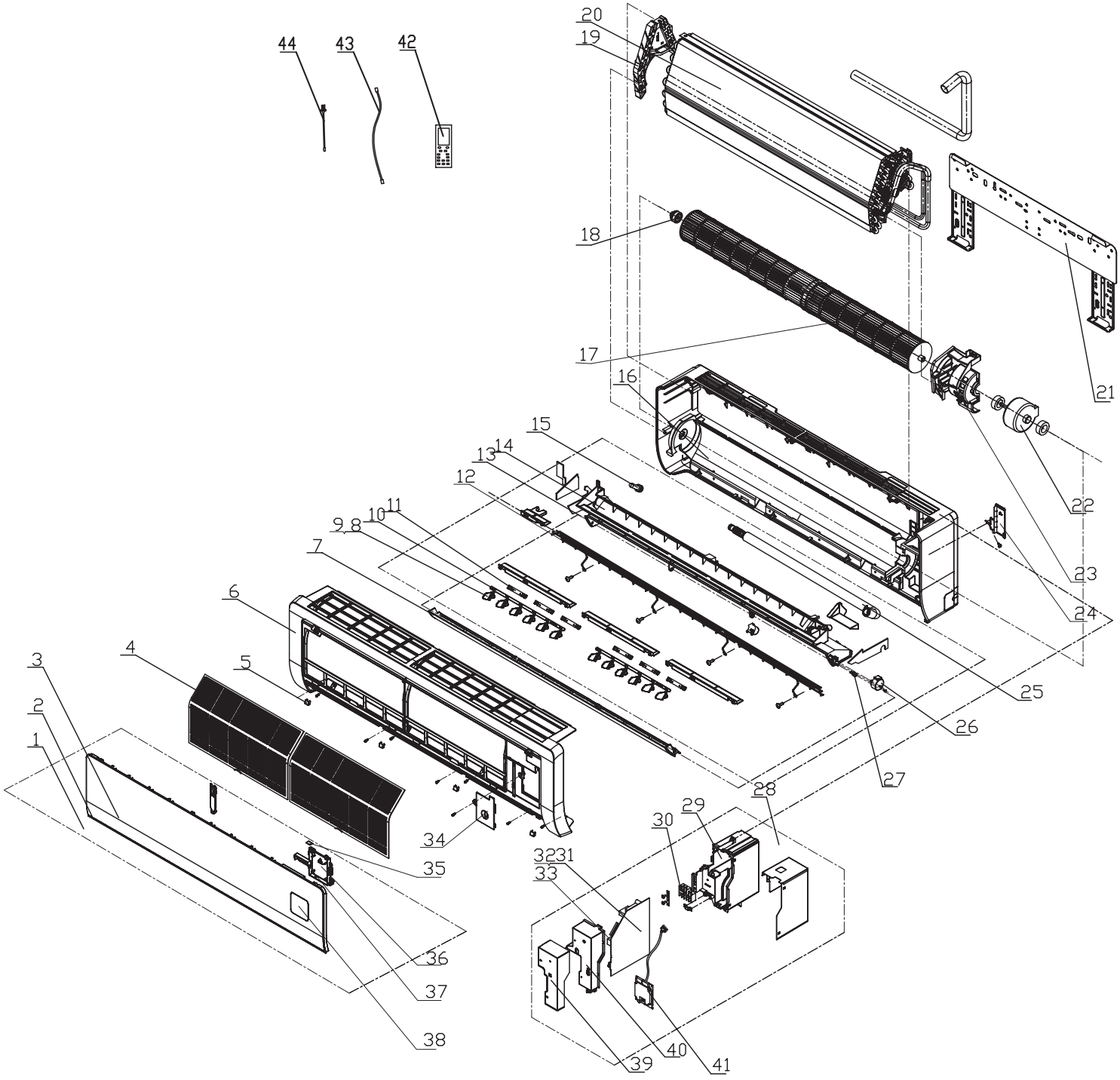
1. Are there unusual noises or vibrations during operation?

Explain Following Items To Customer With The Aid Of The Owner’s Manual:

1. How to turn air conditioner on and off; selecting COOLING, HEATING and other operating modes; setting a desired temperature; setting the timer to automatically start and stop air conditioner operation; and all other features of the Remote Control and display panel.
2. How to remove and clean the air filter.
3. How to set air deflection louver.
4. Explain care and maintenance.
5. Present the Owner’s Manual and installation instructions to customer.

8. Exploded Views and Parts List

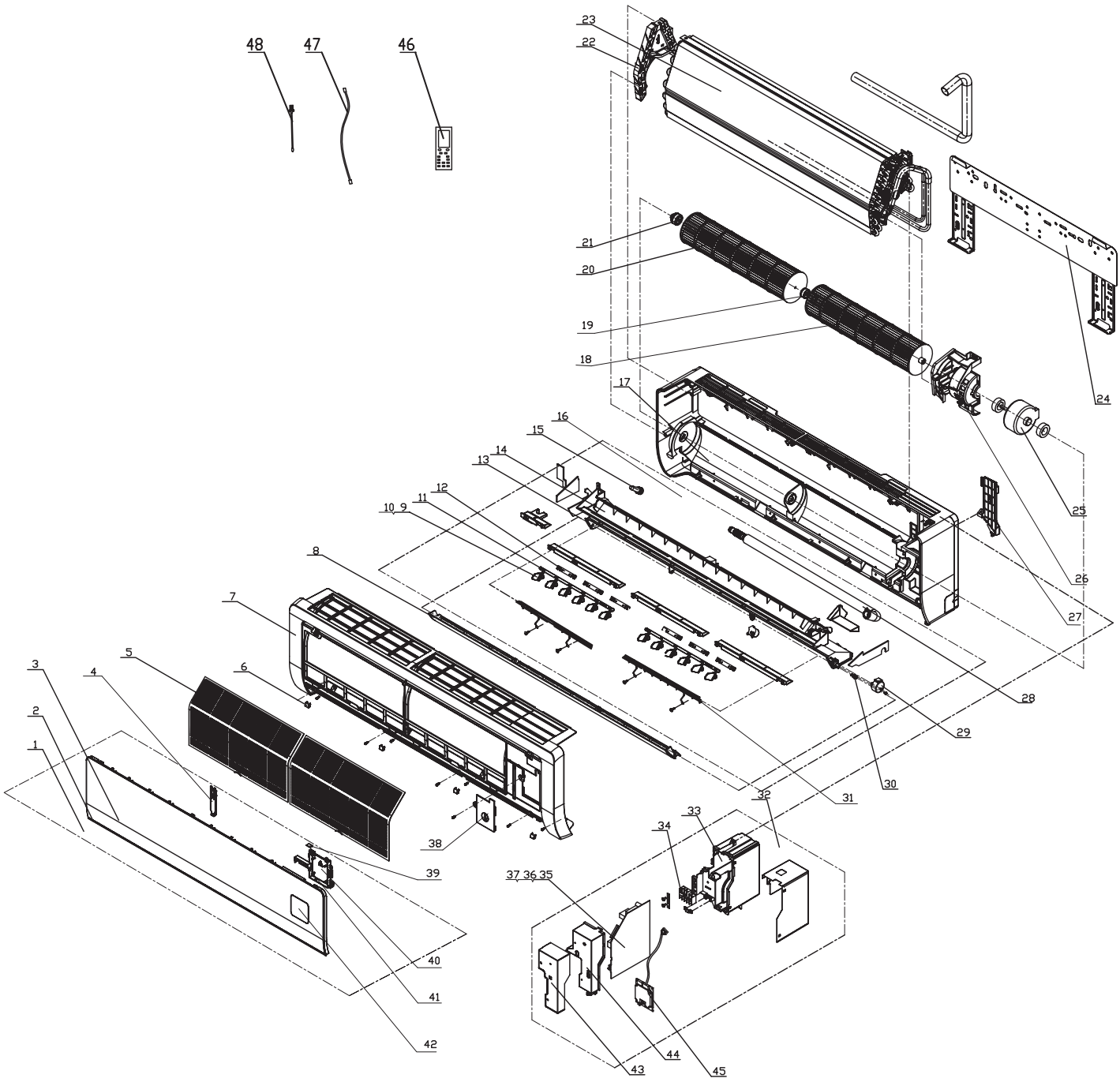
8.1 Indoor Unit



Exploded Views and Parts List

NO.	Description	Part Code	Qty
		GWH18AC-D3DNA1B/I	
	Product Code	CB115N0625_K54715	
1	Front Panel Assy	2001209702	1
2	Decorative Strip	20192202D	1
3	Front Panel	20012027	1
4	Filter Assy	11124096	2
5	Screw Cover	24252017	3
6	Front Case Assy	20012011	1
7	Guide Louver	1051409605P	1
8	Louver	10512097	2
9	Louver	10512099	8
10	Swing Linkage	10584085	1
11	Swing Louver	26112127	5
12	Rear Grill	01472019	1
13	Axile Bush	10542704	1
14	Water Tray Assy	2018210510	1
15	Water Tray Glue Plug	76712012	1
16	Rear Case assy	22202139	1
17	Cross Flow Fan	10352016	1
18	O-Gasket sub-assy of Bearing	76512051	1
19	Evaporator Support	24212109	1
20	Evaporator Assy	0100258401	1
21	Wall Mounting Frame	01252218	1
22	Motor FN20K-PG	15012718	1
23	Motor Clamp	26114094	1
24	Drainage hose	0523001406	1
25	Pipe Clamp	26114095	1
26	Step Motor	15012086	1
27	Axile Bush (guide louver)	10542008	2
28	Electric Box Assy	2020219612	1
29	Electric Box	2011210001	1
30	4-bit Terminal Board	42011233	1
31	Main Board	30138177	1
32	Jumping Connector	4202300112	1
33	Capacitor CBB61	33010002	1
34	Electric Box Cover2	2011400904P	1
35	Membrane	none	0
36	Display Box Cover2	20122058	1
37	Display Box	none	0
38	Receiver Window	none	0
39	Shield cover of Electric Box	01412010	1
40	Electric Box Cover1	2011400801	1
41	Receiver Board D5005	30545052	1
42	Remote Controller	305100502	1
43	Tube Sensor (20K black)	390000591	1
44	Ambient Temperature Sensor	390000451	1

The above data are subject to be changed without notice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Exploded Views and Parts List

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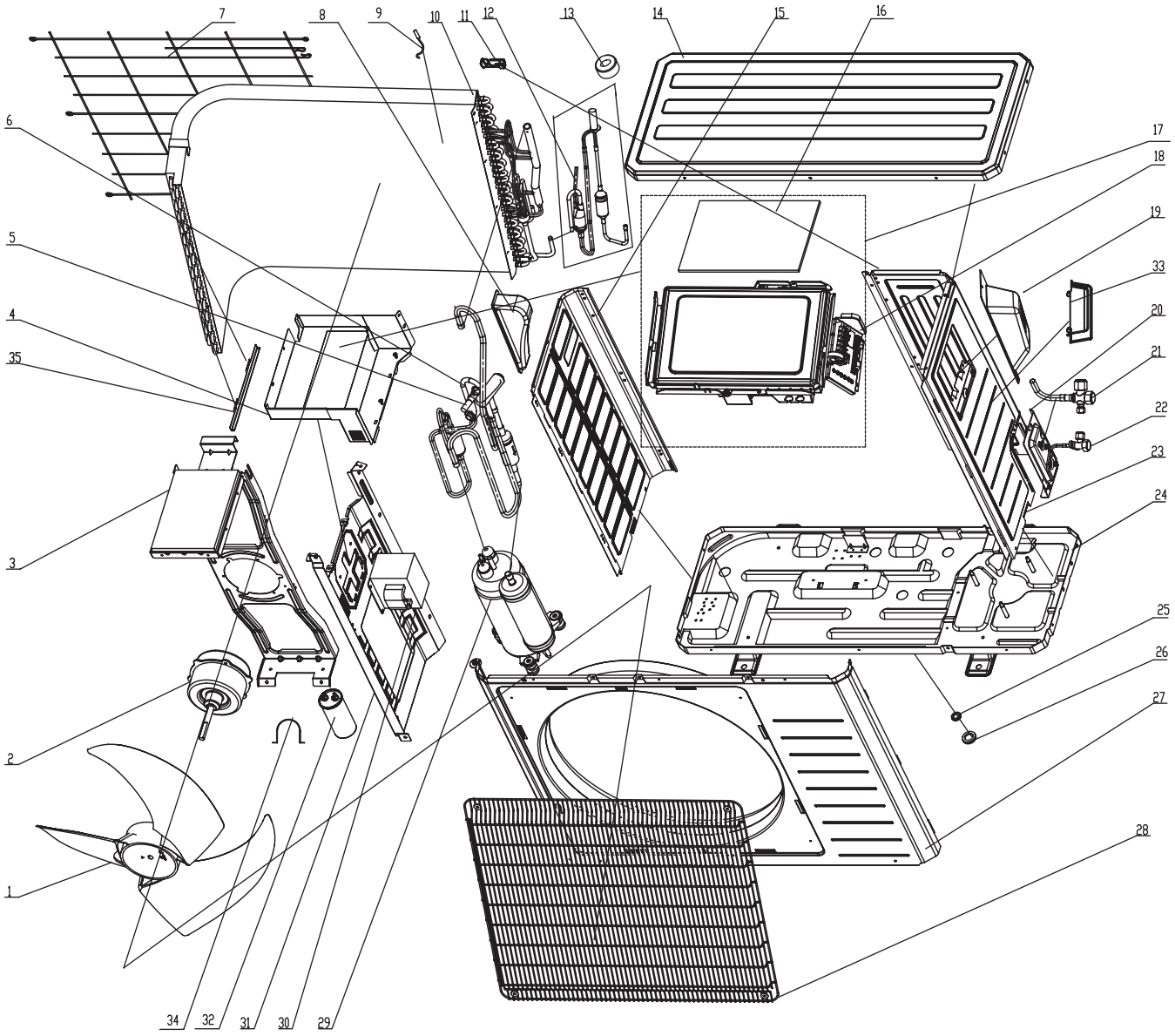
		GWH24AC-D3DNA1B/I	
	Product Code	CB115N0645_K54715	
1	Front Panel Assy	2001211603	1
2	Decorative Board	2019221903	1
3	Front Panel	20004326	1
4	stay bar sub-assy	none	0
5	Filter Sub-assy	11124097	2
6	Screw Cover	24252017	4
7	Front panel Assy	2001207001	1
8	Guide Louver	1051215304P	1
9	Louver	10512097	2
10	Louver	10512099	10
11	Swing Connecting Rod	10584086	2
12	Louver Clamp	26112158	1
13	Axile Bush (guide louver)	10542008	2
14	Water Tray	2018209904	1
15	Water Tray Glue Plug	76712012	1
16	Water Tray Assy	2018211106	1
17	Rear Case	22202096	1
18	Cross Flow Fan	10354002	1
19	O-Gasket sub-assy of Bearing	76512051	1
20	Cross Flow Fan	10354003	1
21	Bearing Holder sub-assy	26152028	1
22	Evaporator Supporter	24214082	1
23	Evaporator Assy	01002567	1
24	Wall-Mounting Frame	01252229	1
25	Fan Motor	1501209801	1
26	Motor Press Plate	26112182	1
27	Pipe Clamp	26112156	1
28	Drainage Pipe	0523001403	1
29	Stepping Motor	1521300101	1
30	Crank	10582070	1
31	Rear Grill	01472021	2
32	Electric Box Assy	2020219613	1
33	Electric Box	2011210001	1
34	4-bit Terminal Board	42011233	1
35	Main Board	30138181	1
36	Jumper	4202300113	1
37	Capacitor	33010034	1
38	Electric Box Cover2	2011400904P	1
39	Membrane	none	0
40	Display Box Cover2	20122058	1
41	Display Box	none	0
42	Receiver Window	none	0
43	Shield cover of Electric Box	01412010	1
44	Electric Box Cover1	2011400801	1
45	Receiver Board D5005	30545052	1
46	Remote Controller	305100502	1
47	Tube Sensor (20K black)	390000591	1
48	Ambient Temperature Sensor	390000451	1

The above data are subject to be changed without notice

8.2 Outdoor Unit



Exploded Views and Parts List

NO.	Description	Part Code	Qty
		GWH18AC-D3DNA1B/O	
	Product Code	CB115W0431_K54715	
1	Axial Flow Fan	10335008	1
2	Fan Motor	15015064	1
3	Motor Support Sub-Assy	01705020	1
4	Electric box (fireproofing)	01413148	1
5	Magnet Coil（4-way Valve）	4300040045	1
6	4-way Valve Assy	03123245	1
7	Rear Grill	01473049	1
8	Small Handle	26235401	1
9	Temperature Sensor	3900030901	1
10	Condenser Assy	01113386_K54715	1
11	Wiring clamp	26115004	1
12	Electronic Expansion Valve	07133556	1
13	Electric expand valve fitting	4300876704	1
14	Top Cover	01255005P	1
15	Left Side Plate	01305041P	1
16	Insulating Plate of Electric box Cover	20113003	1
17	Electric Box Assy	0260306605	1
18	Terminal Board	42010255	1
19	Handle assy	02113109	1
20	Valve support assy	01715010P	1
21	Cut-off valve Sub-Assy	0713306002	1
22	Cut-off valve Sub-Assy	07133058	1
23	Right Side Plate	0130505303P	1
24	Chassis Sub-assy	01203844P	1
25	Drainage Connecter	06123401	1
26	Choke Plug	06813401	1
27	Cabinet	01433047P	1
28	Rear Grill	01473043	1
29	Compressor And Fittings C-6RZ146H1A	00103501	1
30	Reactor	43130021	1
31	Clapboard Sub-Assy	01232902	1
32	Capacitance CBB65 60uF/370v	33000065	1
33	Valve cover	22245002	1
34	Capacitor Clamp sub-assy	01413098	1
35	Supporting board(condenser)	01795010	1
	Main board	30138167	1

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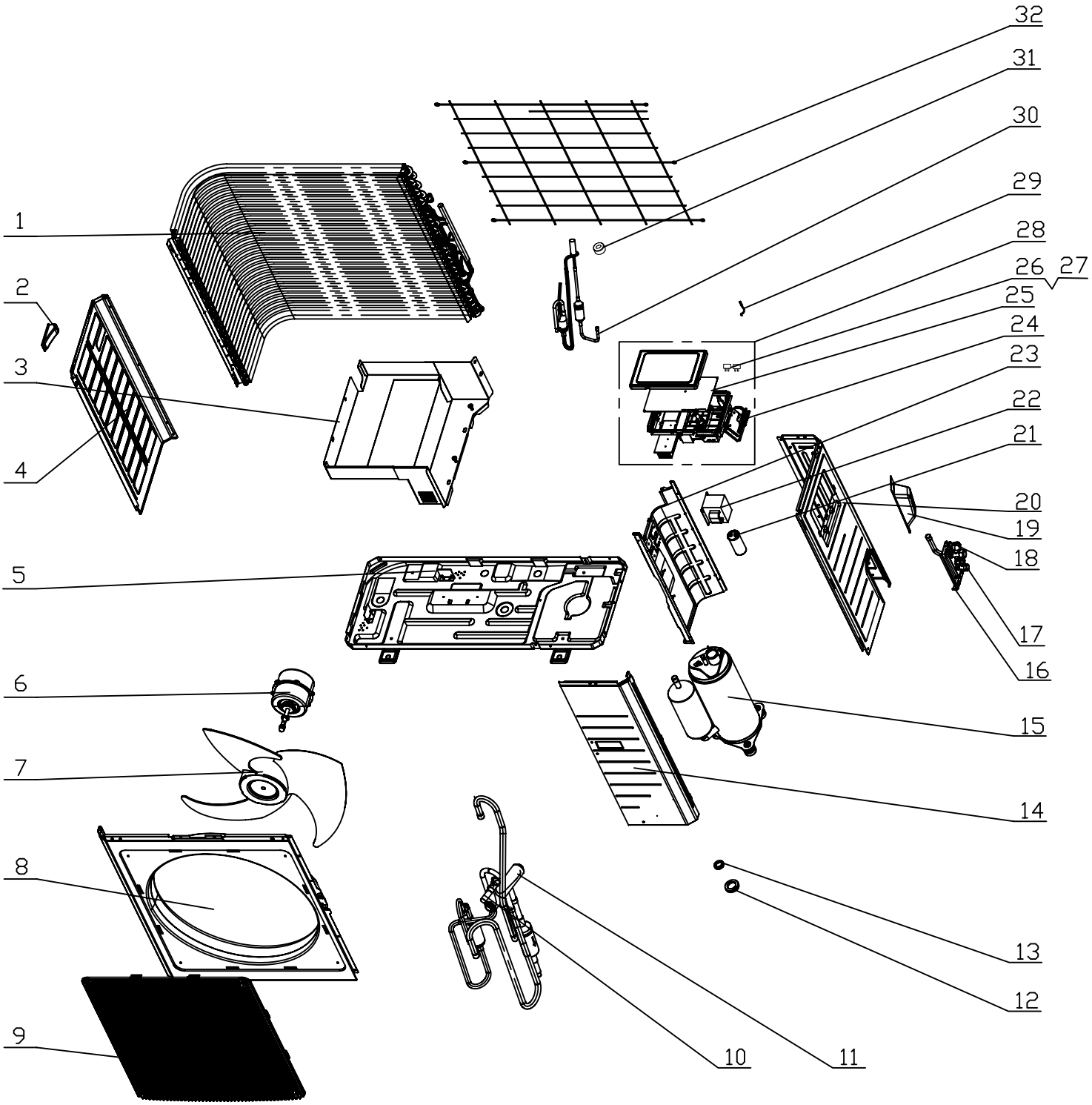
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Exploded Views and Parts List

NO.	Description	Part Code	Qty
		GWH24AC-D3DNA1B/O	
	Product Code	CB115W0451_K54715	
1	Condenser Assy	01113446_K54715	1
2	Small Handle	26235401	1
3	Electric box (fireproofing)	01413426	1
4	Left Side Plate	01305043P	1
5	Chassis Sub-assy	0120377902P	1
6	Fan Motor	15014034	1
7	Axial Flow Fan	10335005	1
8	Cabinet	0143500401P	1
9	Rear Grill	01475013	1
10	4-way Valve Assy	03123275	1
11	Magnet Coil（4-way Valve）	4300040045	1
12	Drainage Connecter	06123401	1
13	Choke Plug	06813401	1
14	Front Side Plate Sub-Assy	01303249P	1
15	Compressor And Fittings C-6RZ146H1A	00103501	1
16	Baffle (valve support)	01365435P	1
17	Cut off Valve	07133616	1
18	Valve Support Sub-Assy	0171501201P	1
19	Handle assy	02113109	1
20	Right Side Plate	0130504402P	1
21	Capacitor	33000039	1
22	Reactor	43130021	1
23	Clapboard Sub-Assy	01233110	1
24	Terminal Board	42010255	1
25	Main board	30138169	1
26	Relay	none	0
27	Relay	none	0
28	Electric Box Assy	0260306611	1
29	Temperature Sensor	3900030901	1
30	Electronic Expansion Valve	07133174	1
31	Electric expand valve fitting	4300876704	1
32	Rear Grill（Front）	01473050	1
	Cut-off Valve	07130239	1

The above data are subject to be changed without notice

9.Troubleshooting

9.1 Troubleshooting x.

This section provides the required flow charts to troubleshoot problems that may arise.

NOTE: **Information required in the diagnoses can be found either on the wiring diagrams or in the appendi**

Required Tools:

The following tools are needed when diagnosing the units:

- Digital multimeter
- Screw drivers (Phillips and straight head)
- Needle-nose pliers

Recommended Steps

1. Refer to the diagnostic hierarchy chart below and determine the problem at hand.
2. Go to the chart listed in the diagnostic hierarchy and follow the steps in the chart for the selected problem.

Error codes, if they occur, are displayed on the LED panel on the front cover of the unit. In addition, some of the same errors are displayed by flashing LEDs on the outdoor board. If possible, always check the diaganostic codes displayed on the indoor unit first.

For problems requiring measurements at the control boards:

1. Always disconnect the main power.
2. When possible check the outdoor board first.
3. Start by removing the outdoor unit top cover.
4. Reconnect the main power
5. Probe the outdoor board inputs and outputs with a digital multi-meter referring to the wiring diagrams and input/output charts found in the appendix.
6. Connect the red probe to hot signal and the black probe to the ground or negative.
7. Note that some of the DC voltage signals are pulse will give continuously variable readings.
8. If it is necessary to check the indoor unit board you must start by disconnecting the main power.
9. Next remove the front cover of the unit and then control box cover.
10. Carefully remove the indoor board from the control box, place it face up on a plastic surface (not metal).
11. Reconnect the main power and repeat steps 5,6, and 7.
12. Disconnect main power before reinstalling board to avoid shock hazard and board damage.

For problems requiring pressure measurements:

1. Connect the low pressure gauge to the gauge connection port on the suction service valve
2. Set compressor speed using the system remote control as follows:
   COOLING – Select a set point of 66°F and push the sleep button 4 times
   HEATING – Select a set point of 84°F and push the sleep button 4 times
3. With the system operating at steady state conditions, make the following measurements:
   a. Outdoor ambient temperature
   b. Compressor discharge temperature as close to the compressor as possible
   c. Suction pressure
4. Refer to the Appendix and select a suction pressure and discharge temperature range based on the outdoor ambient temperature for either cooling or heating. Compare the measured pressure and temperature to the values in the chart to determine if the operating pressures and temperatures of the systems are normal or not.

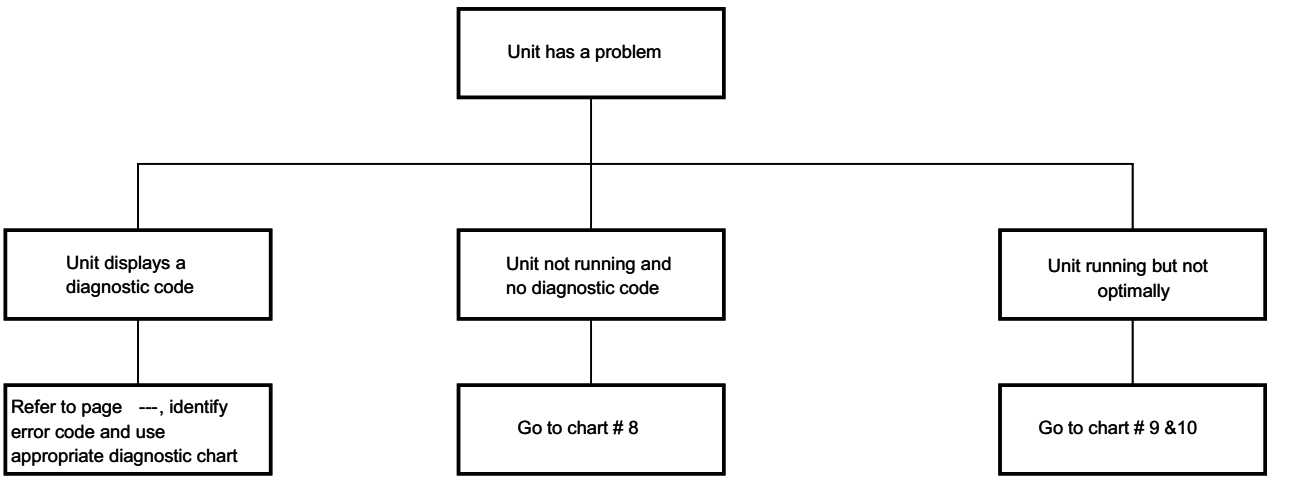

Unit has a problem
Unit displays a diagnostic code
Unit not running and no diagnostic code
Unit running but not optimally
Refer to page ---, identify error code and use appropriate diagnostic chart
Go to chart # 8
Go to chart # 9 &10
A09359

Fig. 27 – Diagnostic Hierarchy

9.2 DIAGNOSTIC CHARTS

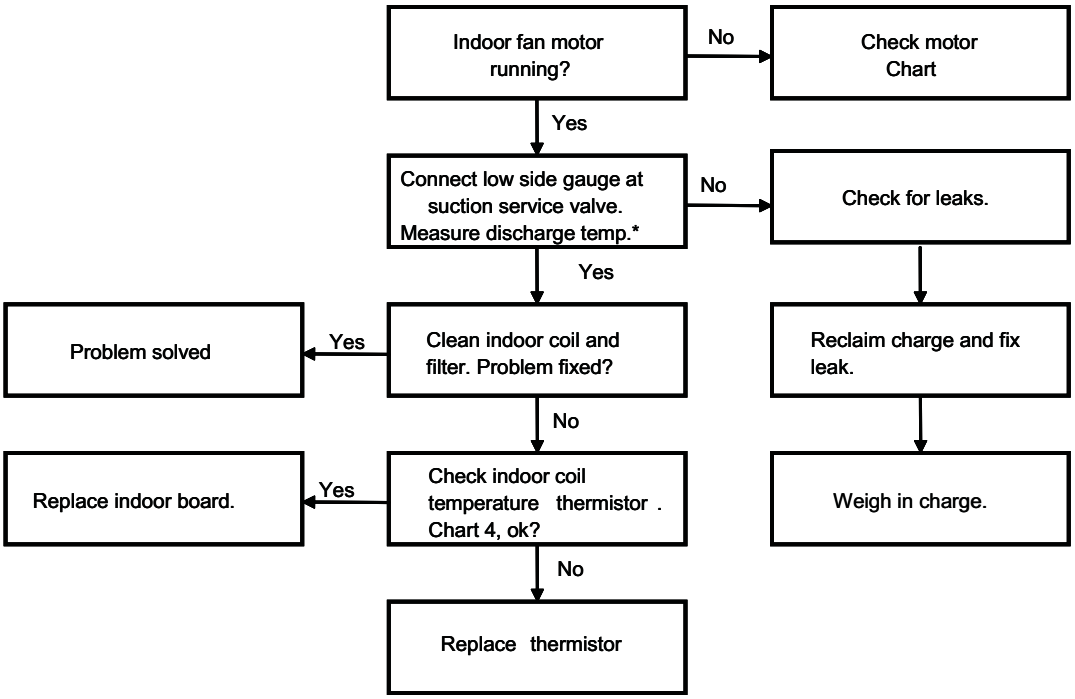


Fig. 28 – Indoor Freeze Protection

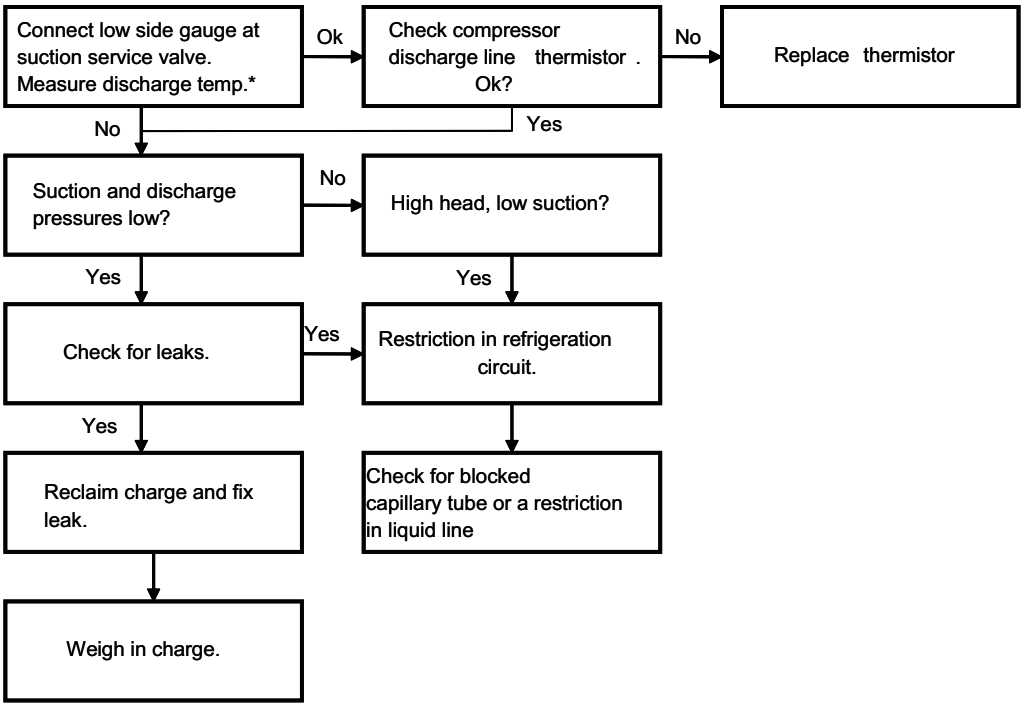
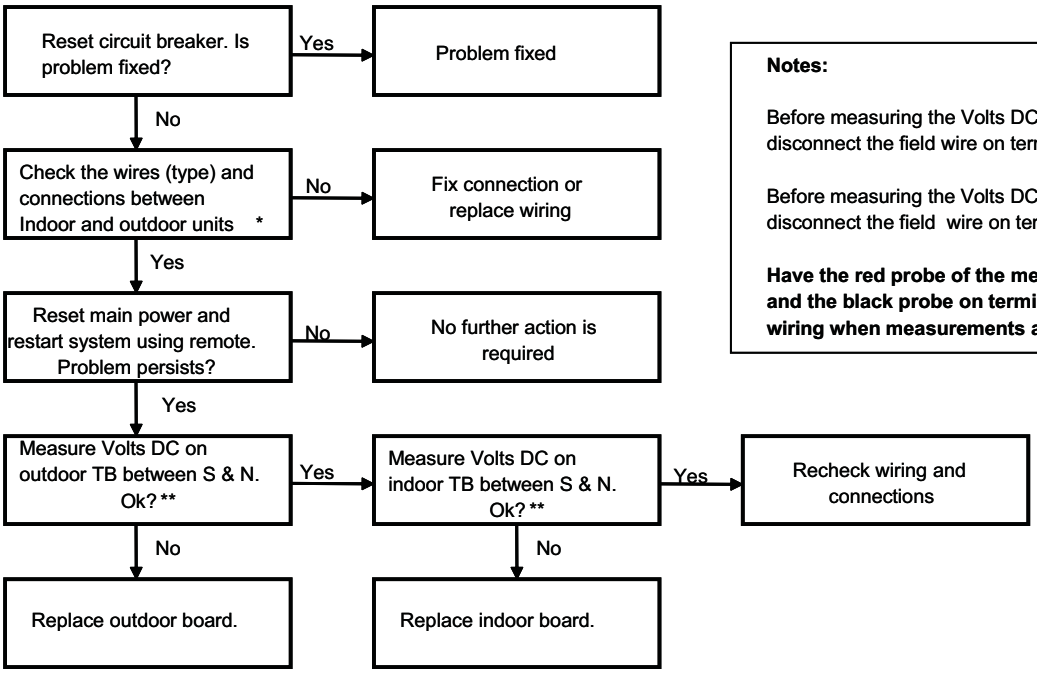


Fig. 29 – High Compressor Discharge Temperature

DIAGNOSTIC CHARTS (CONT.)


Reset circuit breaker. Is problem fixed?
Yes
Problem fixed
No
Check the wires (type) and connections between Indoor and outdoor units *
No
Fix connection or replace wiring
Yes
Reset main power and restart system using remote. Problem persists?
No
No further action is required
Yes
Measure Volts DC on outdoor TB between S & N. Ok? **
Yes
Measure Volts DC on indoor TB between S & N. Ok? **
Yes
Recheck wiring and connections
No
No
Replace outdoor board.
Replace indoor board.

Notes:

Before measuring the Volts DC on outdoor TB, disconnect the field wire on terminal S.

Before measuring the Volts DC on Indoor TB, disconnect the field wire on terminal S.

Have the red probe of the meter on terminal S and the black probe on terminal N. Reconnect wiring when measurements are complete.

* Thermostat wires cannot be used. Wires should be connected per connection diagrams. Failure to do that will result in a communication error. **Polarity needs to be maintained between indoor and outdoor units**

** There is 3 minutes to make the measurement before the diagnostic light comes back on.

A09362

Fig. 30 – Communication Error

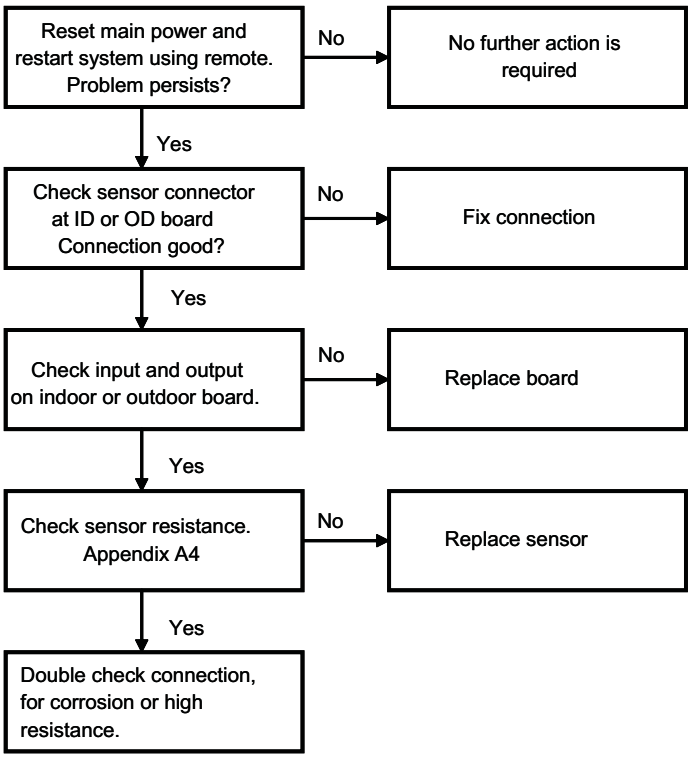


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Fig. 31 – Temperature Sensor

DIAGNOSTIC CHARTS (CONT.)

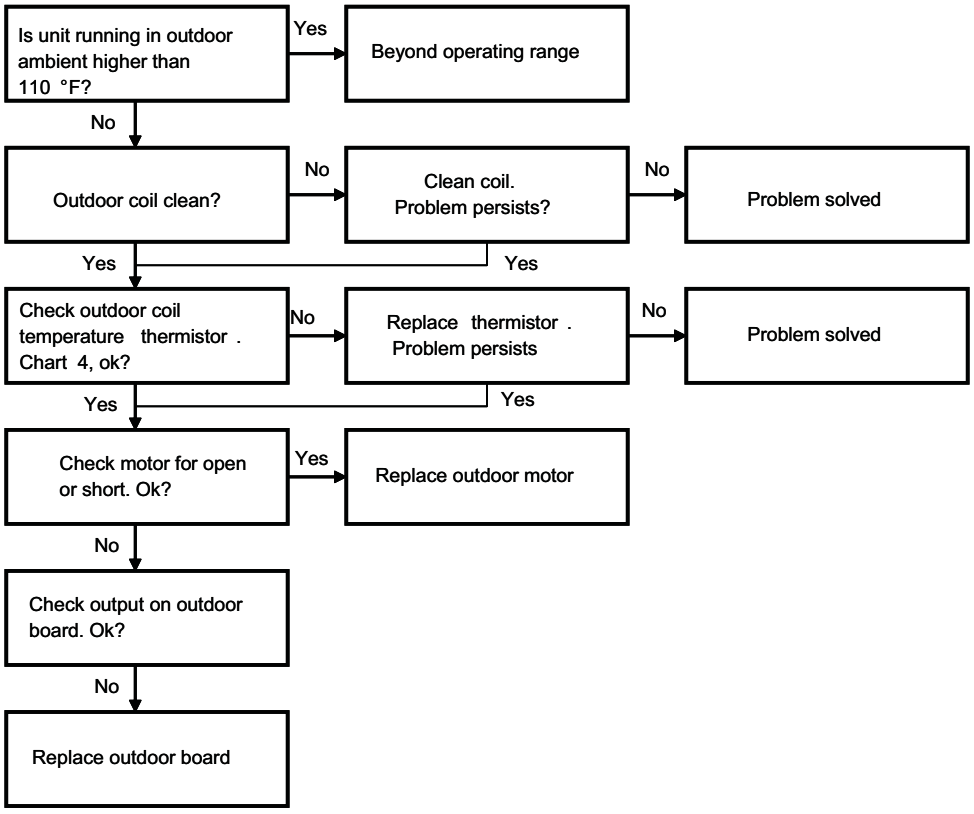


Fig. 32 – High Condensing Temperature

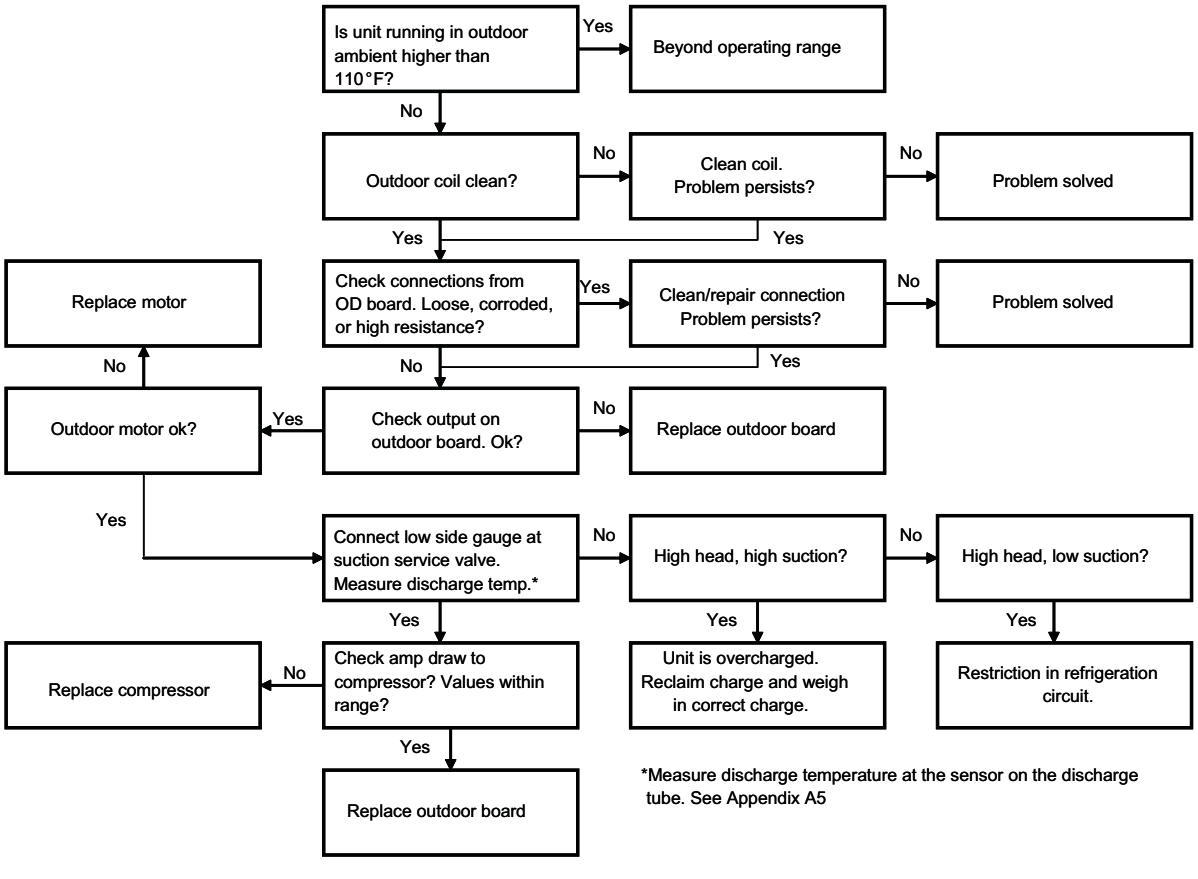
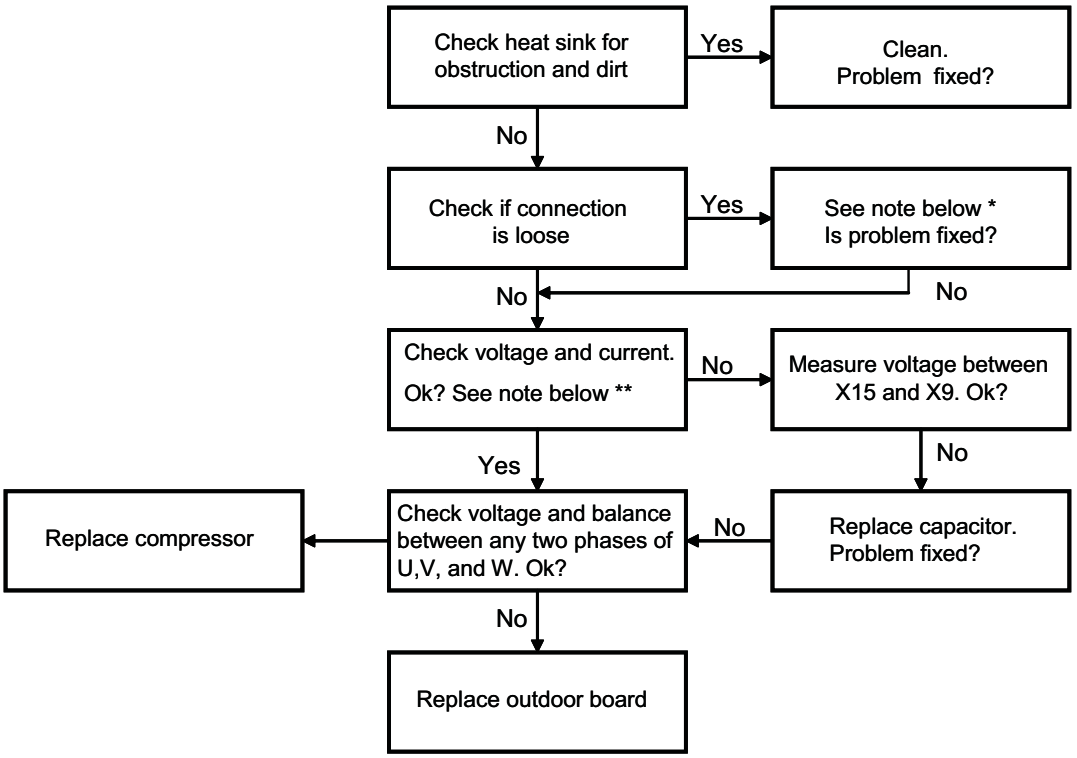


Fig. 33 – Compressor Overcurrent Protection

DIAGNOSTIC CHARTS (CONT.)



* Remove screws, remove heat sink, remove thermal grease. Apply new thermal grease and reassemble.
** Check if voltage between power module P and N is too low and if current is too high. In normal conditions, voltage between P and N should be about 370V.

A09366

Fig. 34 – IPM Module Protection

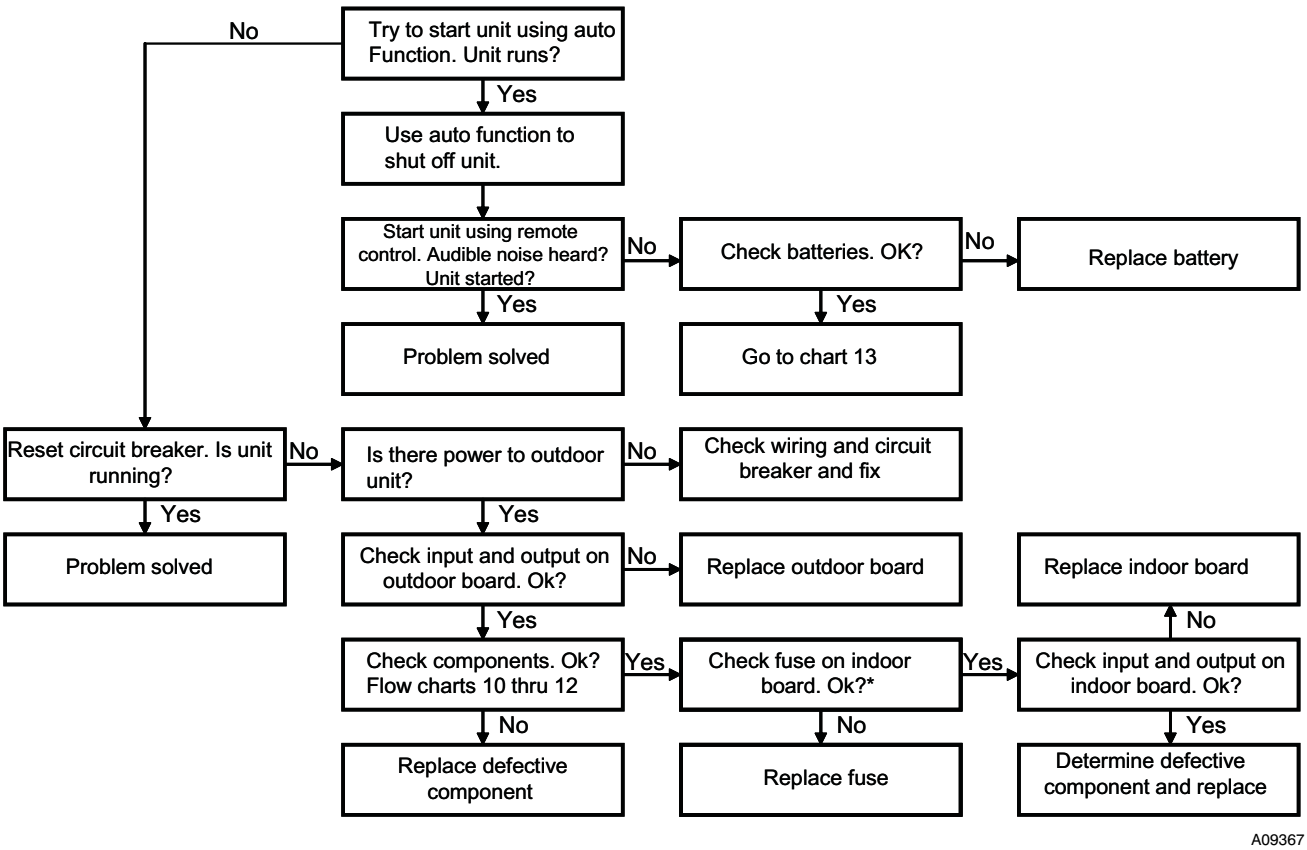


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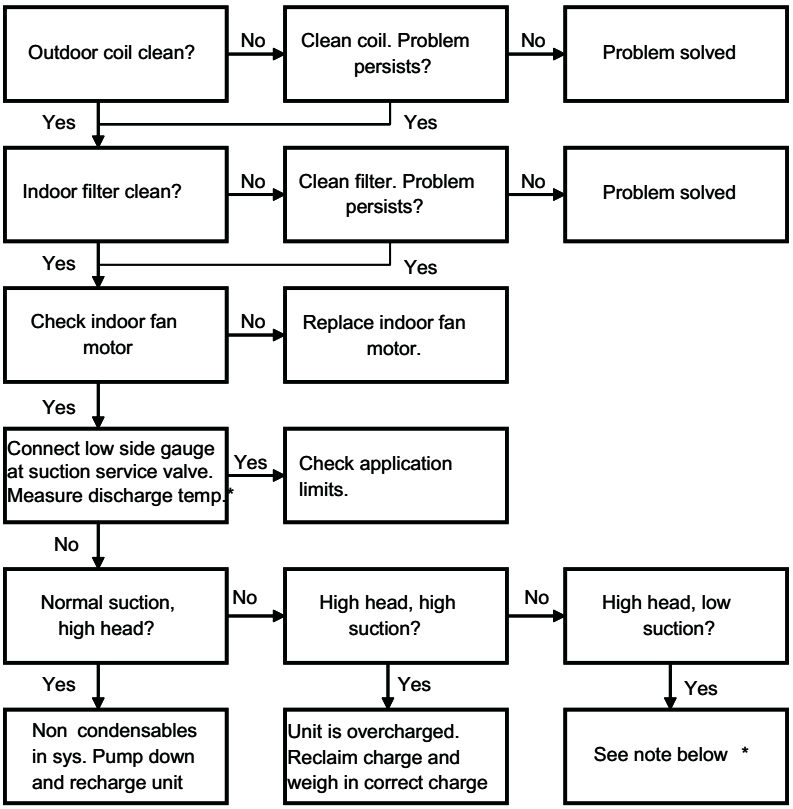
Fig. 35 – Unit Not Running, No Diagnostic Code

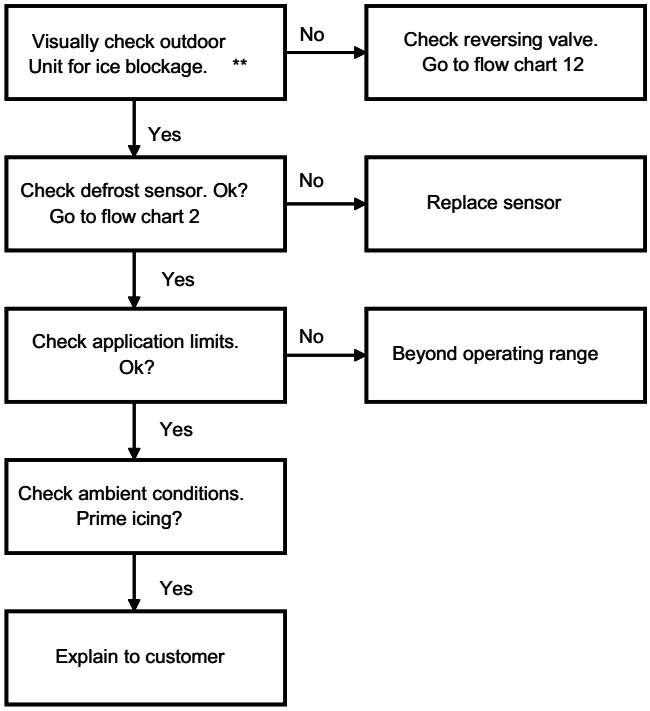
DIAGNOSTIC CHARTS (CONT.)



* Restriction in system. Check capillary tube and check for damage to liquid line between indoor and outdoor units.

A09368

Fig. 36 – Unit Not Running Optimally



* To supplement flow chart 9
** Check for blockage on outdoor coil and drain pan. Are the holes in drain pans blocked?

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Fig. 37 – Unit Not Running Optimally (HP in Heating*)

DIAGNOSTIC CHARTS (CONT.)

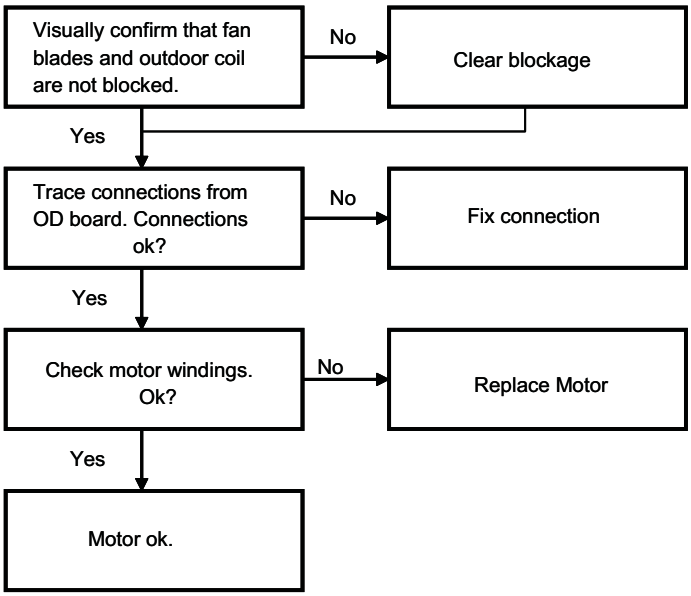

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Fig. 38 – Motors

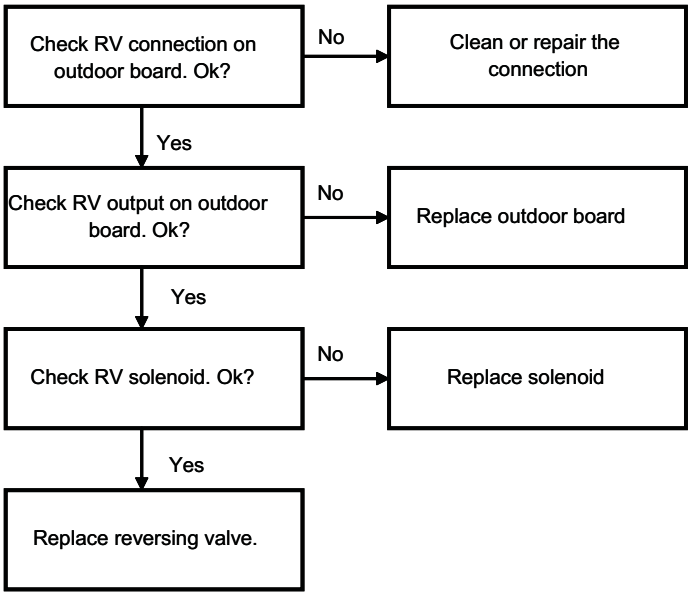

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Fig. 39 – Reversing Valve

DIAGNOSTIC CHARTS (CONT.)

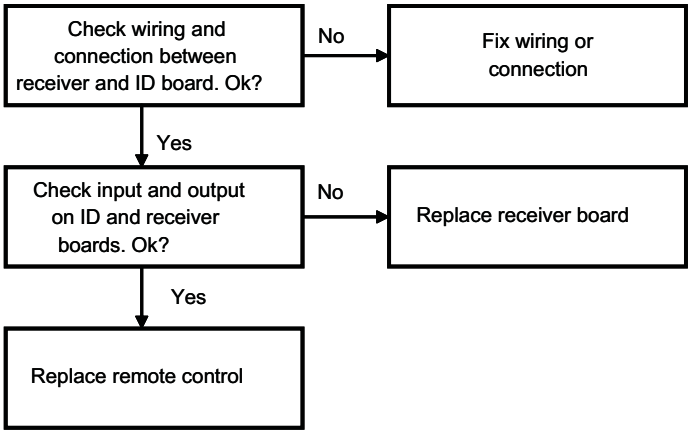

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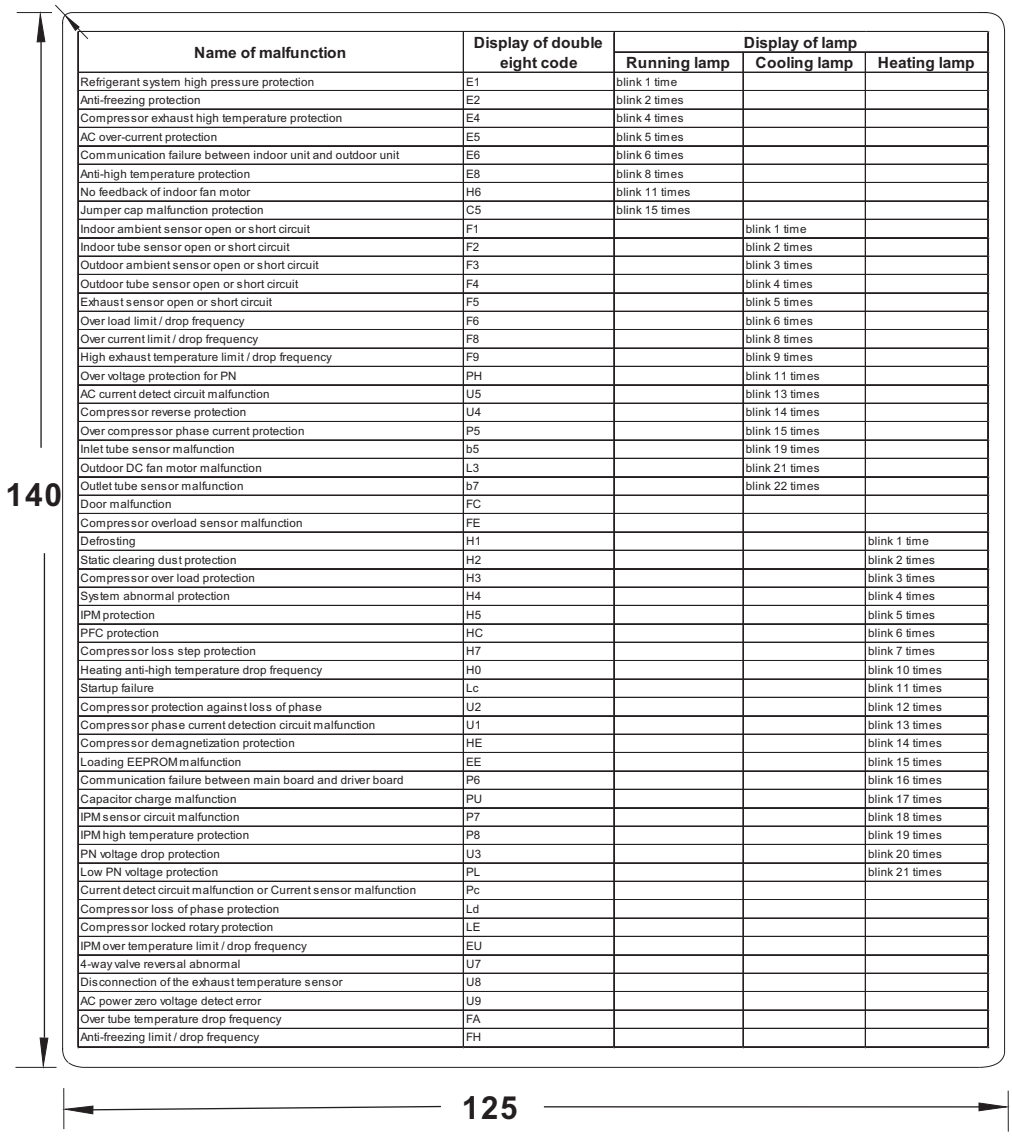
Fig. 40 – Receiver Board

9.2.2 Blinking LED of Indoor/Outdoor Unit



Name of malfunction	Display of double eight code	Display of lamp		
		Running lamp	Cooling lamp	Heating lamp
Refrigerant system high pressure protection	E1	blink 1 time		
Anti-freezing protection	E2	blink 2 times		
Compressor exhaust high temperature protection	E4	blink 4 times		
AC over-current protection	E5	blink 5 times		
Communication failure between indoor unit and outdoor unit	E6	blink 6 times		
Anti-high temperature protection	E8	blink 8 times		
No feedback of indoor fan motor	H6	blink 11 times		
Jumper cap malfunction protection	C5	blink 15 times		
Indoor ambient sensor open or short circuit	F1		blink 1 time	
Indoor tube sensor open or short circuit	F2		blink 2 times	
Outdoor ambient sensor open or short circuit	F3		blink 3 times	
Outdoor tube sensor open or short circuit	F4		blink 4 times	
Exhaust sensor open or short circuit	F5		blink 5 times	
Over load limit / drop frequency	F6		blink 6 times	
Over current limit / drop frequency	F8		blink 8 times	
High exhaust temperature limit / drop frequency	F9		blink 9 times	
Over voltage protection for PN	PH		blink 11 times	
AC current detect circuit malfunction	U5		blink 13 times	
Compressor reverse protection	U4		blink 14 times	
Over compressor phase current protection	P5		blink 15 times	
Inlet tube sensor malfunction	b5		blink 19 times	
Outdoor DC fan motor malfunction	L3		blink 21 times	
Outlet tube sensor malfunction	b7		blink 22 times	
Door malfunction	FC			
Compressor overload sensor malfunction	FE			
Defrosting	H1			blink 1 time
Static clearing dust protection	H2			blink 2 times
Compressor over load protection	H3			blink 3 times
System abnormal protection	H4			blink 4 times
IPM protection	H5			blink 5 times
PFC protection	HC			blink 6 times
Compressor loss step protection	H7			blink 7 times
Heating anti-high temperature drop frequency	H0			blink 10 times
Startup failure	Lc			blink 11 times
Compressor protection against loss of phase	U2			blink 12 times
Compressor phase current detection circuit malfunction	U1			blink 13 times
Compressor demagnetization protection	HE			blink 14 times
Loading EEPROM malfunction	EE			blink 15 times
Communication failure between main board and driver board	P6			blink 16 times
Capacitor charge malfunction	PU			blink 17 times
IPM sensor circuit malfunction	P7			blink 18 times
IPM high temperature protection	P8			blink 19 times
PN voltage drop protection	U3			blink 20 times
Low PN voltage protection	PL			blink 21 times
Current detect circuit malfunction or Current sensor malfunction	Pc			
Compressor loss of phase protection	Ld			
Compressor locked rotary protection	LE			
IPM over temperature limit / drop frequency	EU			
4-way valve reversal abnormal	U7			
Disconnection of the exhaust temperature sensor	U8			
AC power zero voltage detect error	U9			
Over tube temperature drop frequency	FA			
Anti-freezing limit / drop frequency	FH			

9.2.3 Check Malfunction Process

Refer to indicator on indoor/outdoor unit and malfunction table (paste on the electric of cover or the top cover of unit) to confirm the malfunction type.

The indicator of outdoor controller panel will display the related malfunction;

Some malfunctions are to be displayed on the indoor display, while others will be seen on remote controller (press light button 4 times continuously in 3S).

In below malfunction diagnoses process, “Y” is for “Yes”; “N” is for “No”;

In below malfunction diagnoses process, controller panel AP1 is for outdoor controller panel;

Discharge electrolytic capacity and confirm voltage decreases to 20V below according to before method, if not, electrical shock or control panel damaged may occurr!!

9.2.3.1 Capacity charging malfunction (outdoor unit malfunction)

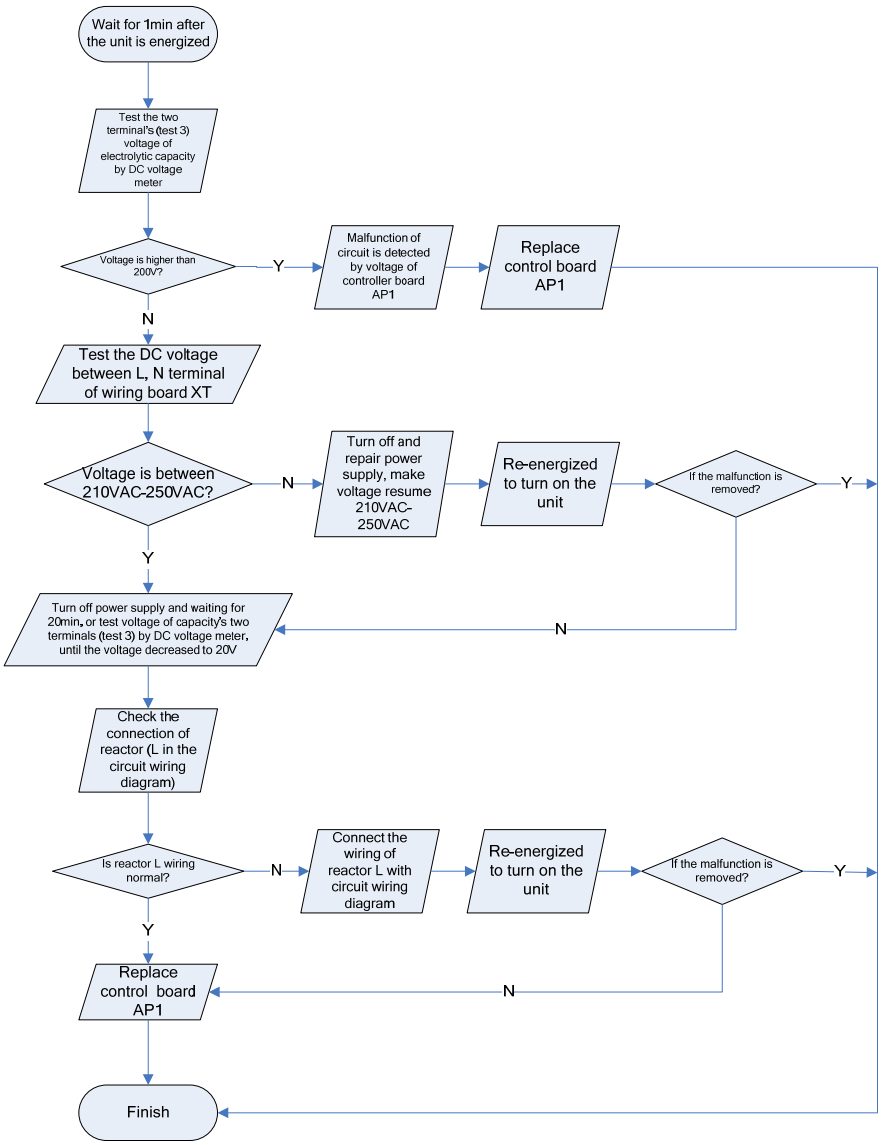
Indoor unit display: PU (dual-8 display), heating indicator is off for 3S and blinks 17 times.

Main detection point:

● Detect if the voltage of L and N terminal of wiring board is between 210AC-240AC by alternating voltage meter;

● Is reactor (L) well connected? Is connection wire loosened or pull-out? Is reactor (L) damaged?

Malfunction diagnosis process:


Wait for 1min after the unit is energized
Test the two terminal's (test 3) voltage of electrolytic capacity by DC voltage meter
Voltage is higher than 200V?
Y
Malfunction of circuit is detected by voltage of controller board AP1
Replace control board AP1
N
Test the DC voltage between L, N terminal of wiring board XT
Voltage is between 210VAC-250VAC?
N
Turn off and repair power supply, make voltage resume 210VAC-250VAC
Re-energized to turn on the unit
If the malfunction is removed?
Y
Y
Turn off power supply and waiting for 20min, or test voltage of capacity's two terminals (test 3) by DC voltage meter, until the voltage decreased to 20V
N
Check the connection of reactor (L in the circuit wiring diagram)
Is reactor L wiring normal?
N
Connect the wiring of reactor L with circuit wiring diagram
Re-energized to turn on the unit
If the malfunction is removed?
Y
Y
Replace control board AP1
N
Finish

9.2.3.2 IPM protection, desynchronizing malfunction, phase current of compressor is overcurrent (outdoor unit malfunction)

Indoor display:

H5 (dual-8 display), heating indicator is off for 3S and blinks 5 times.

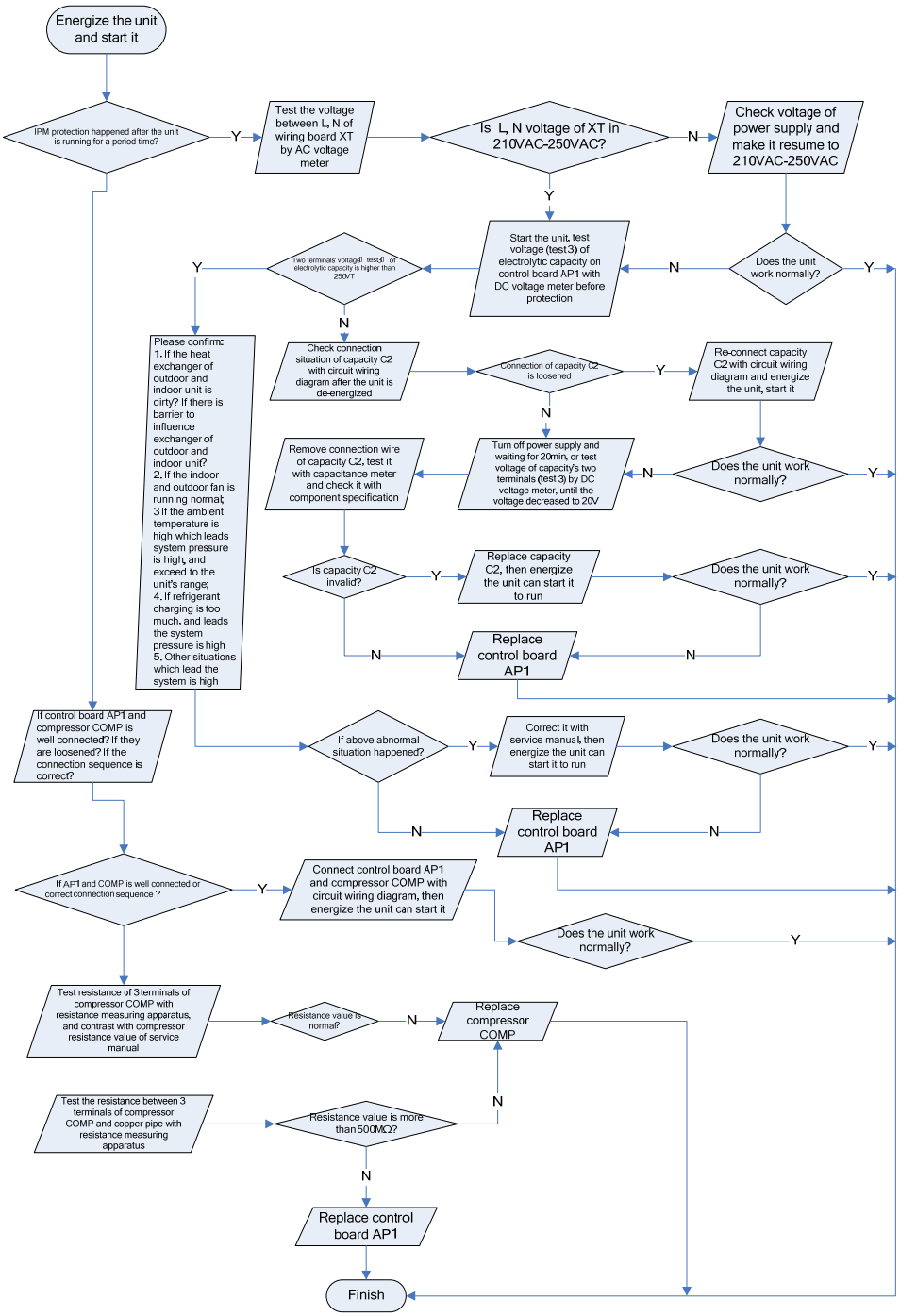
P5 (dual-8 display), heating indicator is off for 3S and blinks 15 times.

H7 (dual-8 display), heating indicator is off for 3S and blinks 7 times.

Main detection points:

- Are control board AP1 and compressor COMP well connected? Are they loosened? Is the connection sequence correct?
- Is voltage input in the normal range (Test the voltage between L、N of wiring board XT by DC voltage meter)?
- Is coil resistance of compressor normal? Is there reliable insulation between compressor coil and copper tube?
- Is the work load of unit heavy? Is radiating of unit OK?
- Is the refrigerant charging appropriate?

Malfunction diagnosis process:


Energize the unit and start it
IPM protection happened after the unit is running for a period time?
Y
Test the voltage between L, N of wiring board XT by AC voltage meter
Is L, N voltage of XT in 210VAC-250VAC?
N
Check voltage of power supply and make it resume to 210VAC-250VAC
Y
Start the unit, test voltage (test3) of electrolytic capacity on control board AP1 with DC voltage meter before protection
N
Does the unit work normally?
Y
Two terminals' voltage(test3) of electrolytic capacity is higher than 250V?
Y
N
Please confirm:
1. If the heat exchanger of outdoor and indoor unit is dirty? If there is barrier to influence exchanger of outdoor and indoor unit?
2. If the indoor and outdoor fan is running normal;
3 If the ambient temperature is high which leads system pressure is high, and exceed to the unit's range;
4. If refrigerant charging is too much, and leads the system pressure is high
5. Other situations which lead the system is high
Check connection situation of capacity C2 with circuit wiring diagram after the unit is de-energized
Connection of capacity C2 is loosened
Y
Re-connect capacity C2 with circuit wiring diagram and energize the unit, start it
N
Remove connection wire of capacity C2, test it with capacitance meter and check it with component specification
Turn off power supply and waiting for 20min, or test voltage of capacity's two terminals (test 3) by DC voltage meter, until the voltage decreased to 20V
N
Does the unit work normally?
Y
Is capacity C2 invalid?
Y
Replace capacity C2, then energize the unit can start it to run
Does the unit work normally?
Y
N
Replace control board AP1
N
If control board AP1 and compressor COMP is well connected? If they are loosened? If the connection sequence is correct?
If above abnormal situation happened?
Y
Correct it with service manual, then energize the unit can start it to run
Does the unit work normally?
Y
N
Replace control board AP1
N
If AP1 and COMP is well connected or correct connection sequence ?
Y
Connect control board AP1 and compressor COMP with circuit wiring diagram, then energize the unit can start it
Does the unit work normally?
Y
Test resistance of 3terminals of compressor COMP with resistance measuring apparatus, and contrast with compressor resistance value of service manual
Resistance value is normal?
N
Replace compressor COMP
Test the resistance between 3 terminals of compressor COMP and copper pipe with resistance measuring apparatus
Resistance value is more than 500MΩ?
N
N
Replace control board AP1
Finish

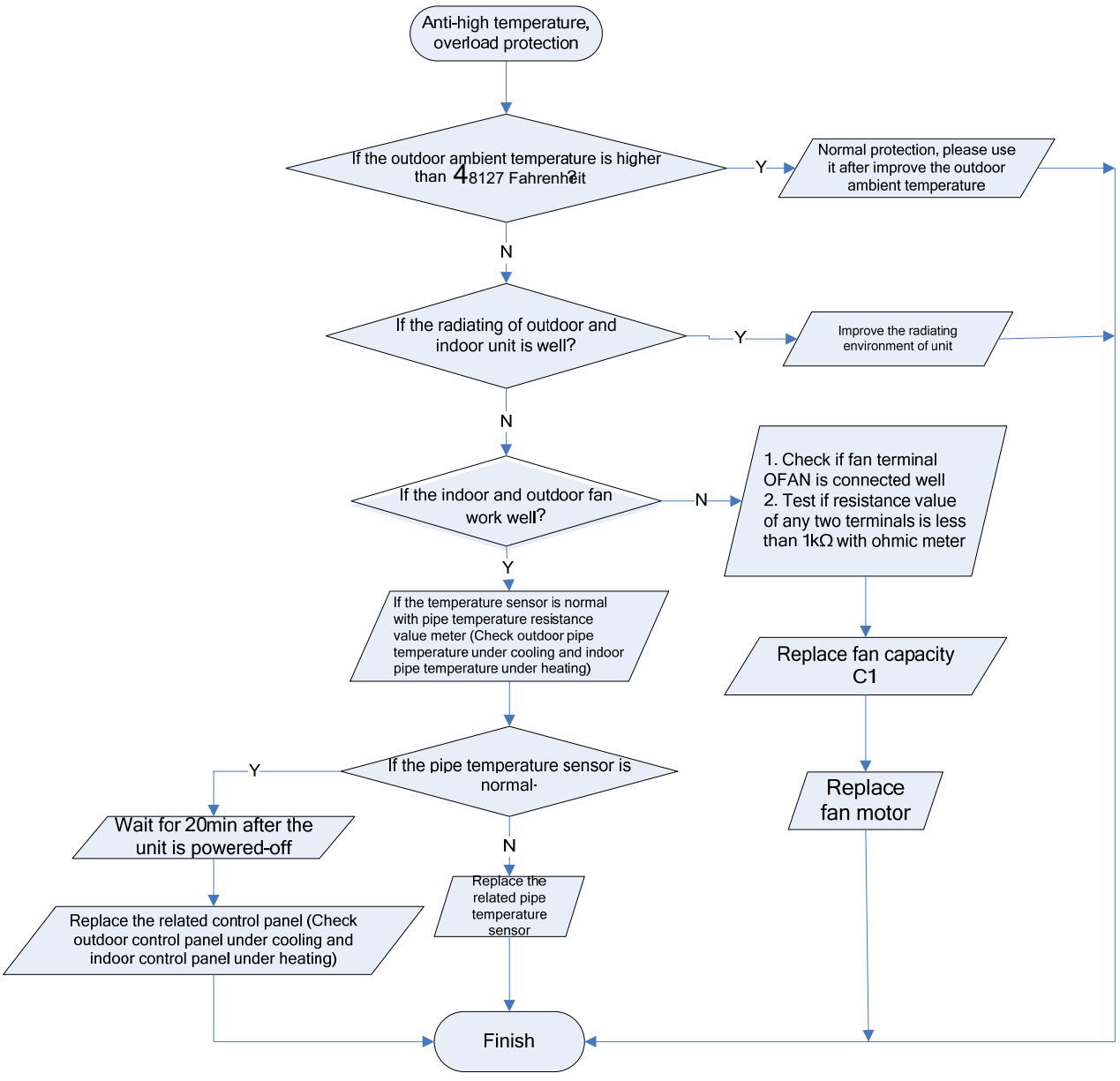
9.2.3.3 Diagnosis of high temperature、overload protection (Check outdoor unit when cooling and indoor unit when heating)

Indoor unit display: H4 (dual-8 display), heating indicator is off for 3S and blinks 4 times.

Main detection points:

- Is the indoor and outdoor ambient temperature in normal range?
- Is the indoor and outdoor fan running normally?
- Is the radiating environment of indoor and outdoor unit OK?
- Is the indoor and outdoor pipe temperature sensor normal?

Malfunction diagnosis process:


Anti-high temperature, overload protection
If the outdoor ambient temperature is higher than 48127 Fahrenheit?
Y
Normal protection, please use it after improve the outdoor ambient temperature
N
If the radiating of outdoor and indoor unit is well?
Y
Improve the radiating environment of unit
N
If the indoor and outdoor fan work well?
N
1. Check if fan terminal OFAN is connected well
2. Test if resistance value of any two terminals is less than 1kΩ with ohmic meter
Y
If the temperature sensor is normal with pipe temperature resistance value meter (Check outdoor pipe temperature under cooling and indoor pipe temperature under heating)
Replace fan capacity C1
If the pipe temperature sensor is normal·
Y
Replace fan motor
Wait for 20min after the unit is powered-off
N
Replace the related pipe temperature sensor
Replace the related control panel (Check outdoor control panel under cooling and indoor control panel under heating)
Finish

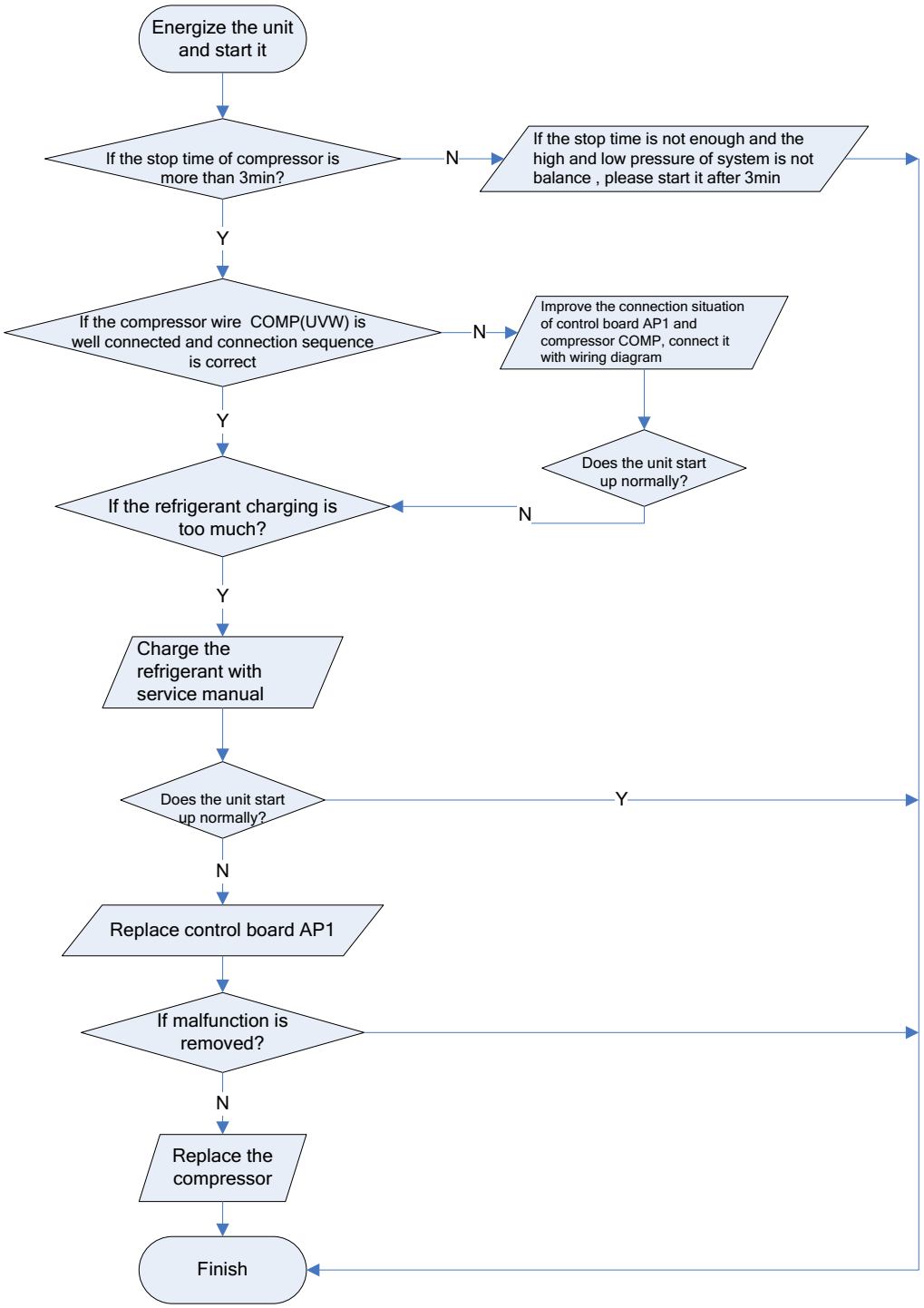
9.2.3.4 Diagnosis of failure startup (outdoor unit malfunction)

Indoor display: LC (dual-8 display), heating indicator is off for 3S and blinks 11 times.

Main detection point:

- Is the compressor wiring correct?
- Is the off time of compressor enough?
- Is the compressor damaged?
- Is the refrigerant charging too much?

Malfunction diagnosis process:


Energize the unit and start it
If the stop time of compressor is more than 3min?
N
If the stop time is not enough and the high and low pressure of system is not balance , please start it after 3min
Y
If the compressor wire COMP(UVW) is well connected and connection sequence is correct
N
Improve the connection situation of control board AP1 and compressor COMP, connect it with wiring diagram
Y
Does the unit start up normally?
If the refrigerant charging is too much?
N
Y
Charge the refrigerant with service manual
Does the unit start up normally?
Y
N
Replace control board AP1
If malfunction is removed?
N
Replace the compressor
Finish

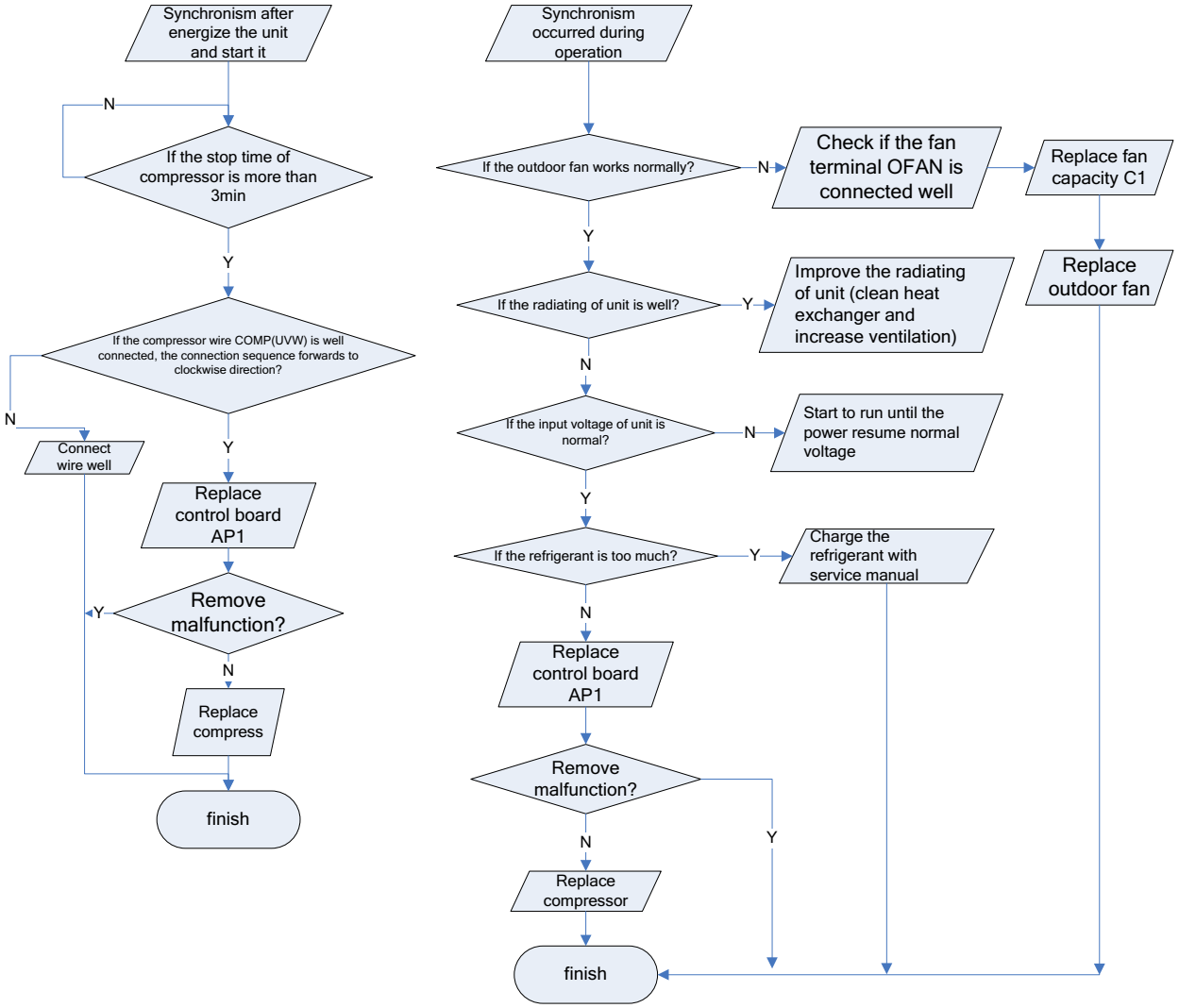
9.2.3.5 Diagnosis of compressor synchronism (outdoor unit malfunction)

Indoor display: H7 (dual-8 display), heating indicator is off for 3S and blinks 7 times.

Main detection point:

- Is the system pressure over-high?
- Is the work voltage over-low?

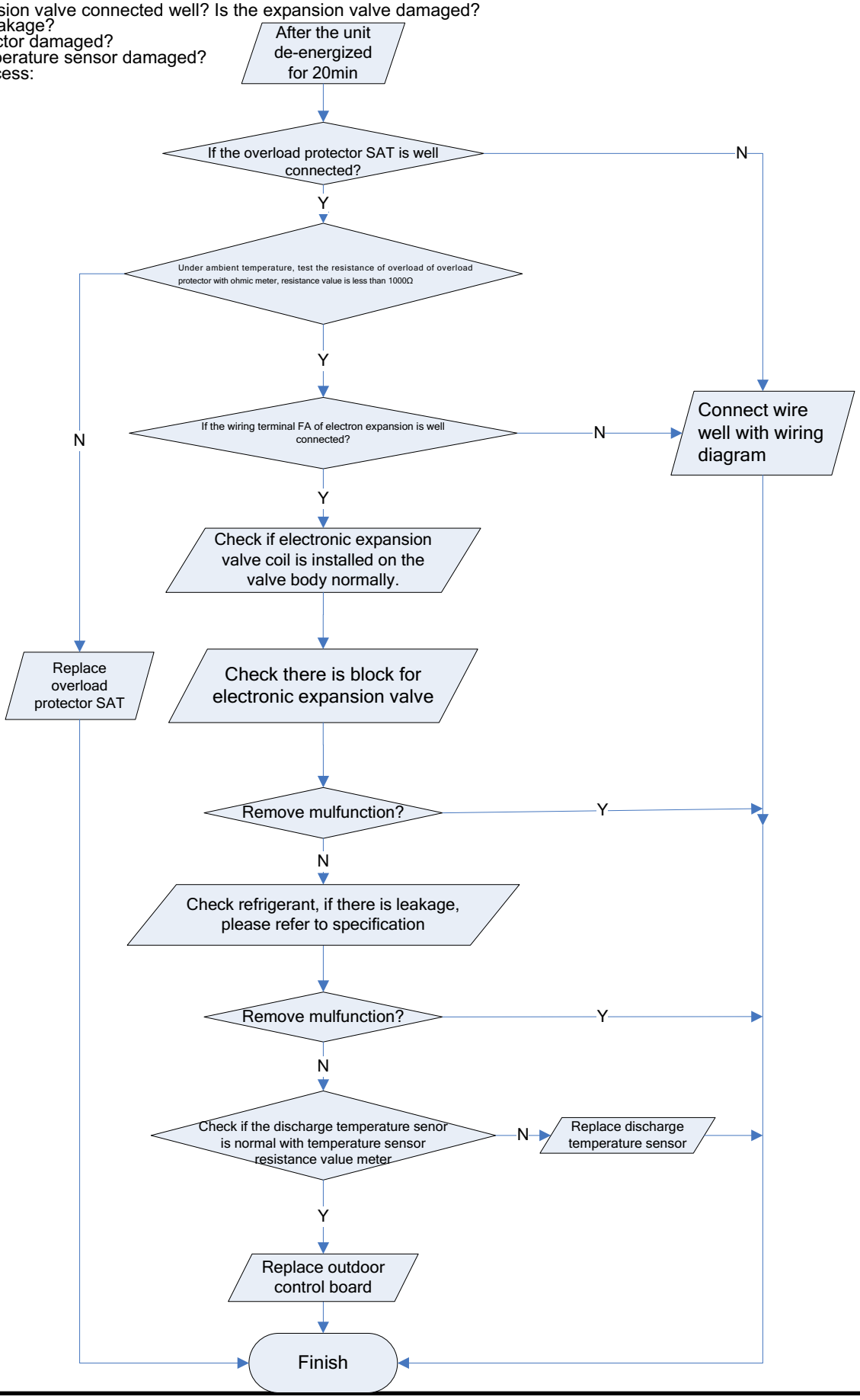
Malfunction diagnosis process:



9.2.3.6 Diagnosis of overload and discharge malfunction (outdoor unit malfunction)
Indoor display: H3 (dual-8 display), heating indicator is off for 3S and blinks 3 times.
E4 (dual-8 display), operation is off for 3S and blinks 4 times.
Main detection point:

- Is the electron expansion valve connected well? Is the expansion valve damaged?
- Is there refrigerant leakage?
- Is the overload protector damaged?
- Is the discharge temperature sensor damaged?

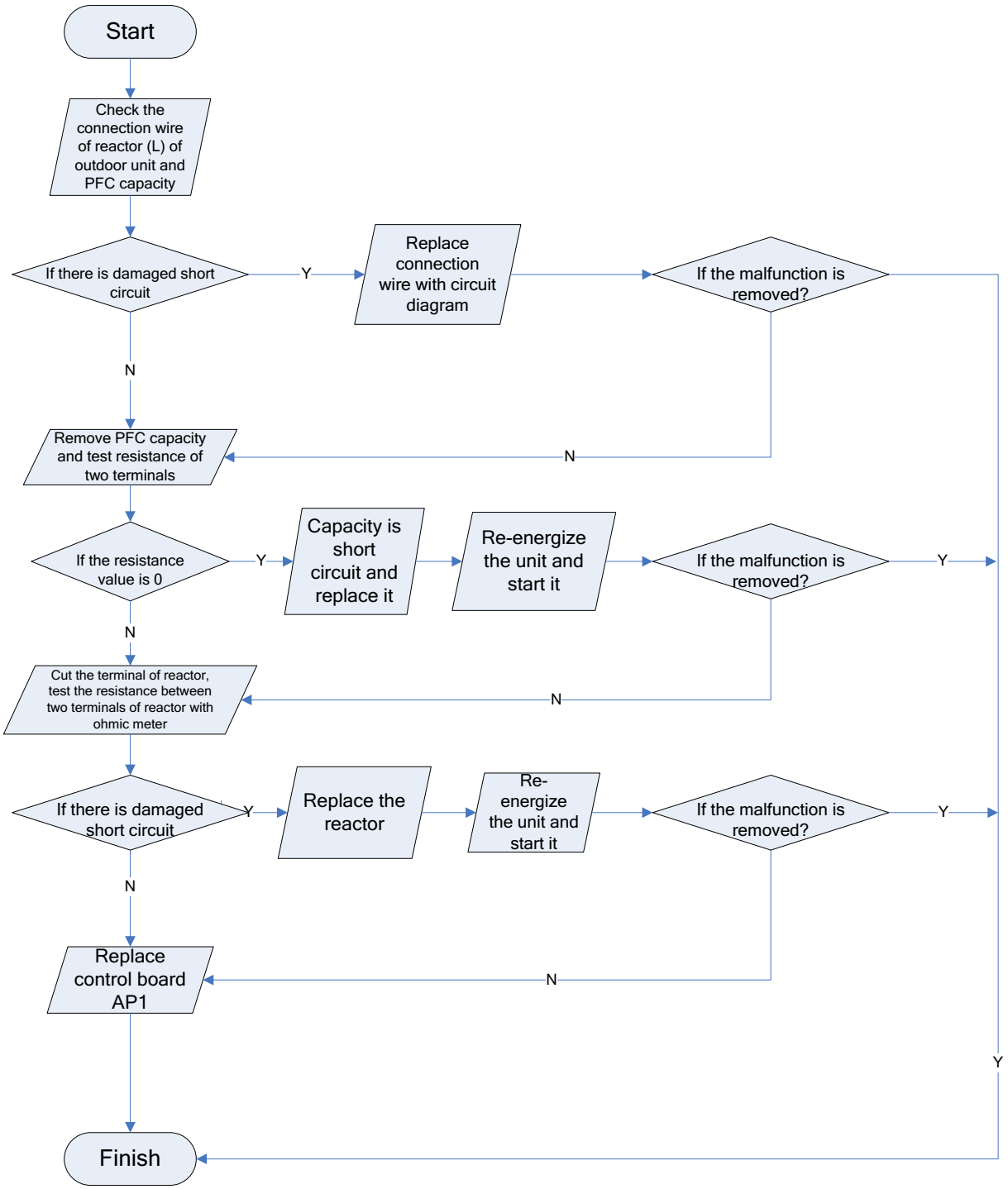
Malfunction diagnosis process:


After the unit de-energized for 20min
If the overload protector SAT is well connected?
N
Y
Under ambient temperature, test the resistance of overload of overload protector with ohmic meter, resistance value is less than 1000Ω
Y
N
If the wiring terminal FA of electron expansion is well connected?
N
Connect wire well with wiring diagram
Y
Check if electronic expansion valve coil is installed on the valve body normally.
Replace overload protector SAT
Check there is block for electronic expansion valve
Remove mulfunction?
Y
N
Check refrigerant, if there is leakage, please refer to specification
Remove mulfunction?
Y
N
Check if the discharge temperature senor is normal with temperature sensor resistance value meter
N
Replace discharge temperature sensor
Y
Replace outdoor control board
Finish

9.2.3.7 PFC (correction for power factor) malfunction (outdoor unit malfunction)
Indoor display: HC (dual-8 display), heating indicator is off for 3S and blinks 6 times.
Main detection point:

- Check if reactor (L) of outdoor unit and PFC capacity are damaged

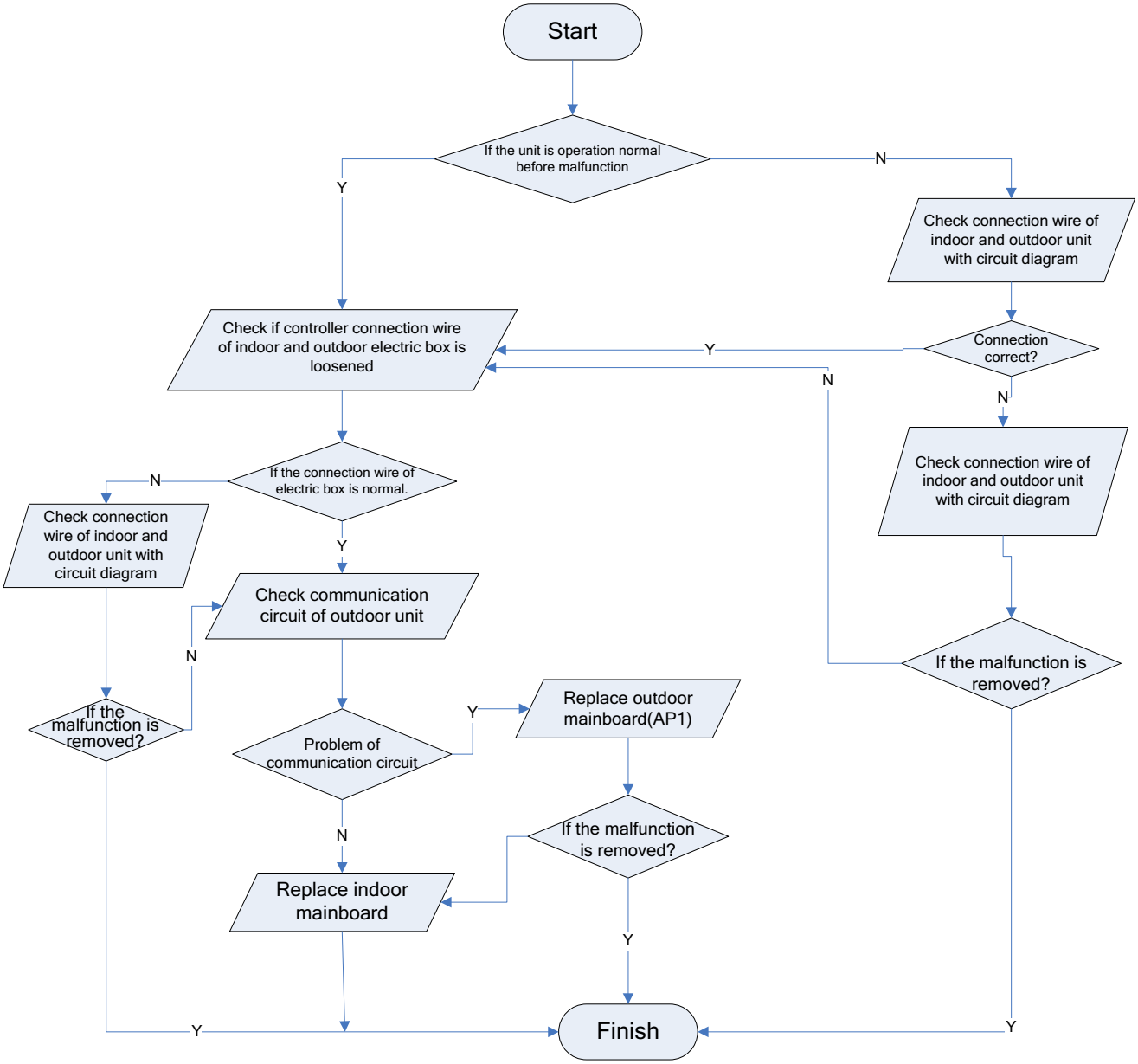
Malfunction diagnosis process:


Start
Check the connection wire of reactor (L) of outdoor unit and PFC capacity
If there is damaged short circuit
Y
Replace connection wire with circuit diagram
If the malfunction is removed?
N
Remove PFC capacity and test resistance of two terminals
N
If the resistance value is 0
Y
Capacity is short circuit and replace it
Re-energize the unit and start it
If the malfunction is removed?
Y
N
Cut the terminal of reactor, test the resistance between two terminals of reactor with ohmic meter
N
If there is damaged short circuit
Y
Replace the reactor
Re-energize the unit and start it
If the malfunction is removed?
Y
N
Replace control board AP1
N
Y
Finish

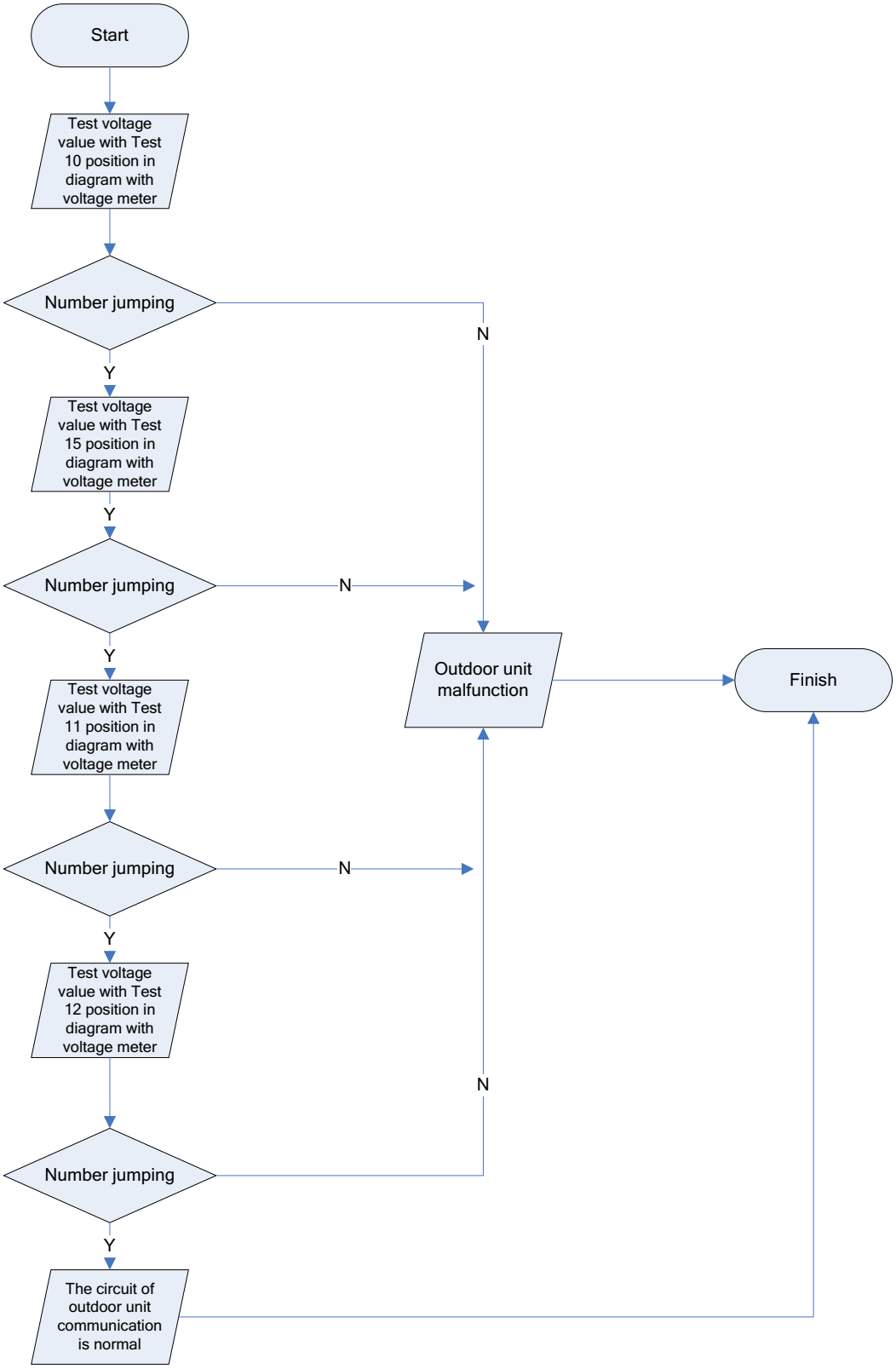
9.2.3.8 Communication malfunction (outdoor unit malfunction)
Indoor display: E6 (dual-8 display), heating indicator is off for 3S and blinks 6 times.
Main detection point:

- Check if the connection wire and the built-in wiring of indoor and outdoor units are connected well and not damaged;
- Is the communication circuit of indoor mainboard damaged? Is the communication circuit of outdoor mainboard (AP1) damaged?

Malfunction diagnosis process:



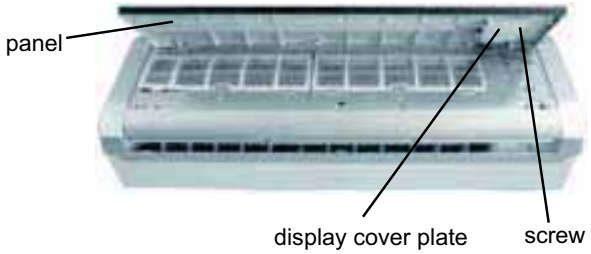
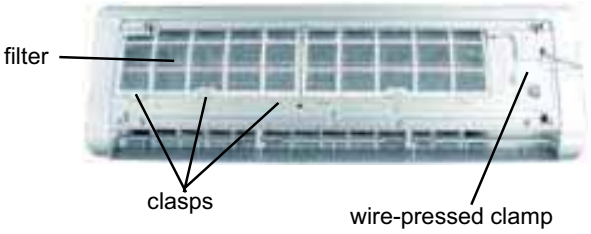
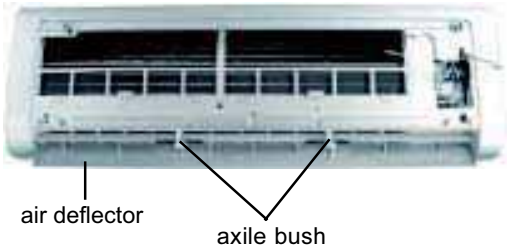
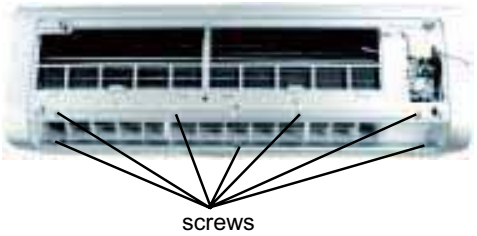
Diagnosis process for outdoor communication circuit: (refer to key test point of outdoor unit):

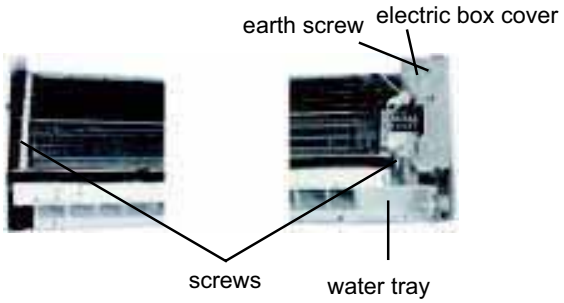
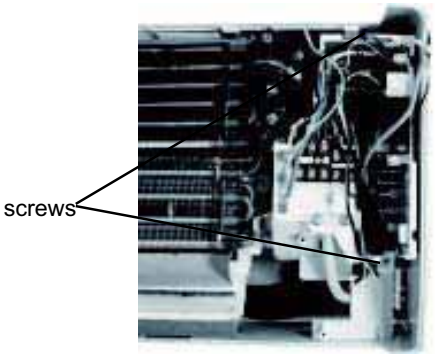
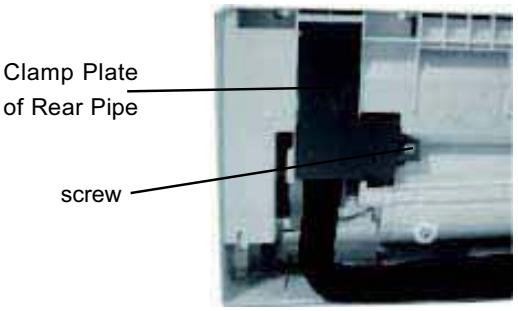
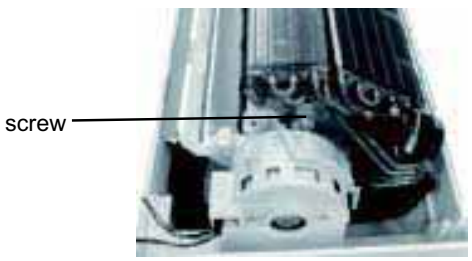


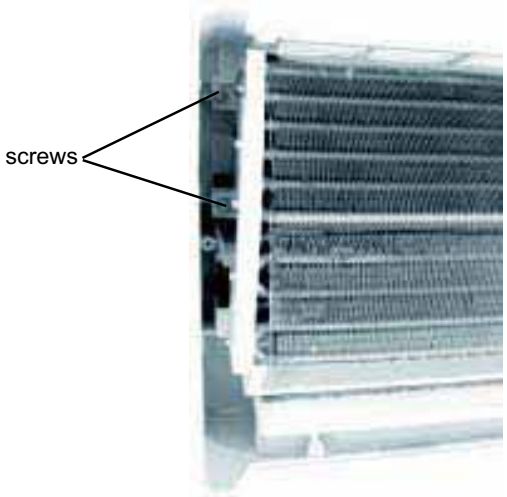
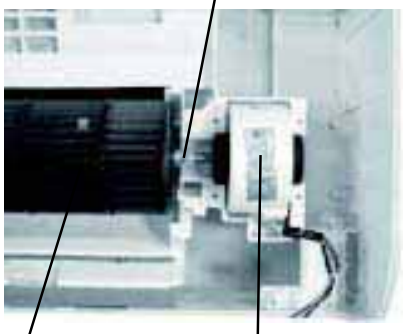
10. Removal Procedure

10.1 Removal Procedure of Indoor Unit

Warning **Be sure to wait** for a minimum of **10 minutes after turning off all power supplies before disassembling work.**

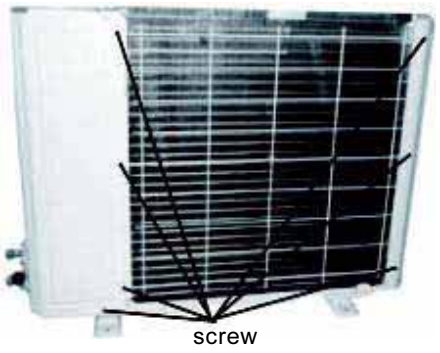
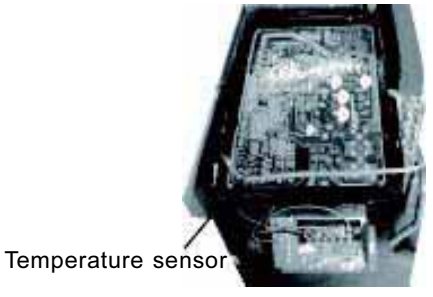
Step	Procedure	
1.	Remove **panel**	
	Push the convex parts on the left and right sides of the front panel, and then lift the front panel. Unscrew the screws fixing the display cover and pull out the plug.Forcibly lift the front panel upwards from the clasps to take it out.	
2.	Remove **filter and** wire-pressed clamp	
	Top the middle section of air filter from the clasps at both sides.Pull the air filter forward to remove it. Unscrew the 1 screw on press plate to open the press wire board.	
3.	Remove swing louver	
	Push out the axile bush in the middle of air deflector.Then slightly bend the air deflector to remove it.	
4.	Remove **panel case**	
	Unscrew the 7 tapping screws fixing the front case, and turn the front case backwards to remove it.	

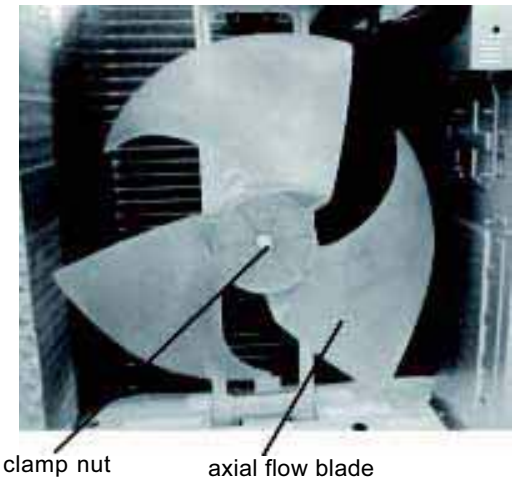
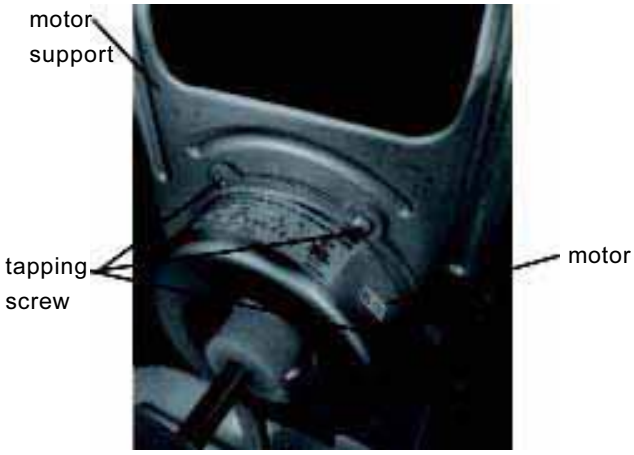
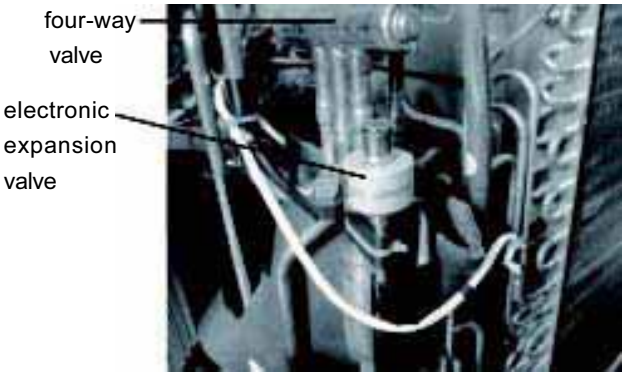
Step	Procedure	
5.	Remove **water tray**	
	Unscrew the ground screw on the electric box cover and loose the clasps to remove electric box cover.Pulll out the wiring terminal.Unscrew the 2 screws fixing the water tray to remove the water tray.	
6.	Remove **electric box**	
	Unscrew the 2 screws fixing the electric box. Unplug the motor terminal.Unscrew the three ground screws.Lift the electric box upwards to remove it.	
7.	Remove **evaporator assy**	
	Unscrew the screws fixing the clamp plate of rear pipe at the back of evaporator to remove the plate.	
	Unscrew the screw on the right of evaporator.	

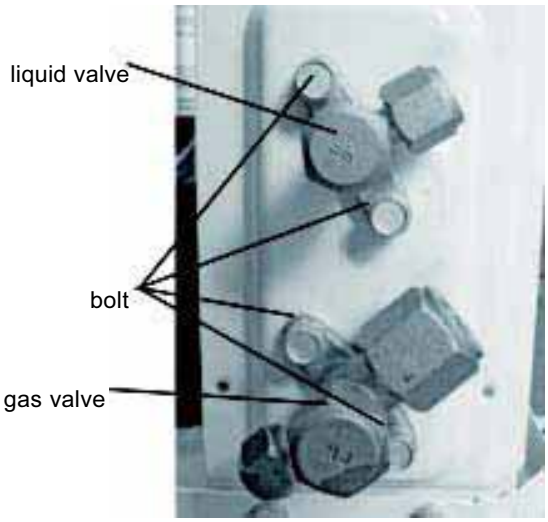
Step	Procedure	
	Unscrew the 2 screws on the left of evaporator Turn the evaporator at certain angle to remove it.	
8.	Remove **motor and cross-flow louver**	
	Unscrew the screws fixing the press plate of motor and connecting motor and cross flow fan to remove the motor and cross flow louver.	 

10.2 Removal Procedure of Outdoor Unit (18K Unit)

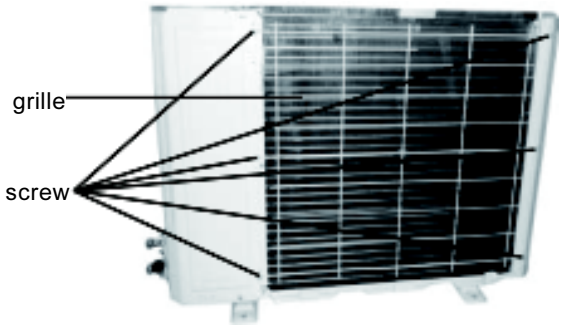
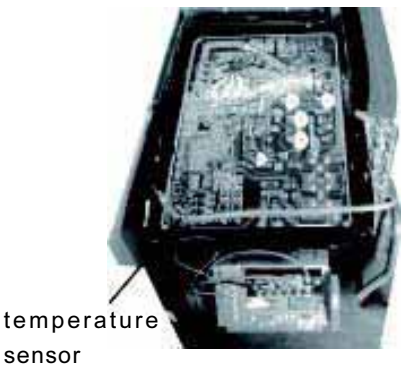
⚠ Warning **Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.**

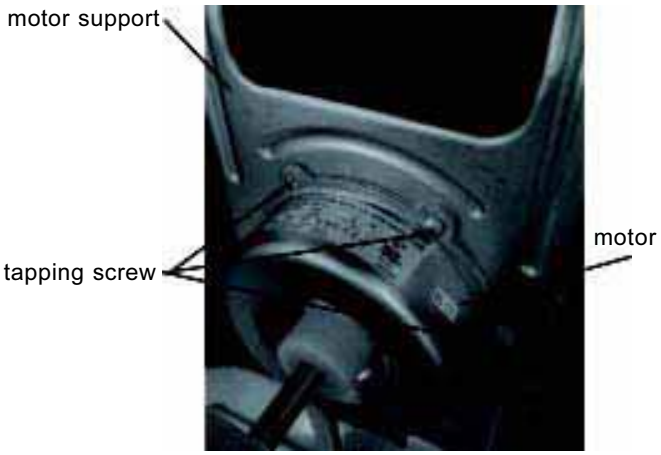
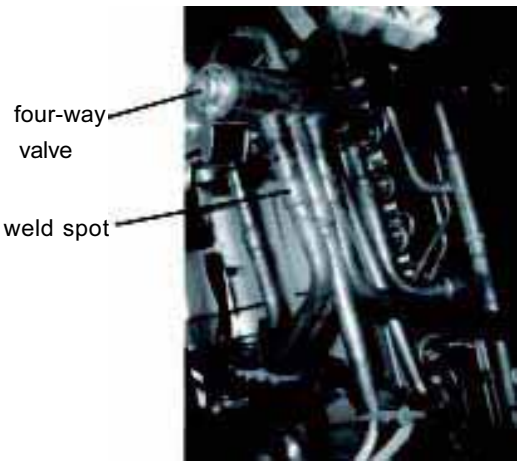
Step	Procedure	
1.	Remove **top cover**	
	Twist off the fastening screw used for fixing the handle, pull it downward and then remove the handle. Twist off the screws around the top cover, pull it upward and then remove the top cover.	
2.	Remove **grille and right side plate**	
	Twist off the screw around the grille and then remove the grille. Twist off the screws between right side plate and end plate of condenser, valve support, pull it upward and then remove the right side plate.	
3.	Remove **electric box**	
	Disassemble the screws on electric box cover, pull out the temperature sensor and then remove the electric box. Ensure don not contact control panel when removing electric box cover, if not, electrolytic capacity will discharge and lead electric shock or burn out control panel.	

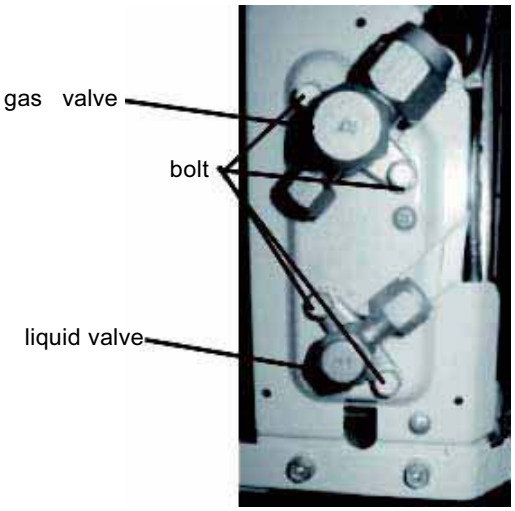
Step	Procedure	
4.	Remove **axial flow blade**	
	Loosen the tight nut with spanner and remove the nuts, spring washer, plain washer, then remove the axial flow blade forcibly.	
5.	Remove **motor and motor support**	
	Twist off the clamping screws, take out the motor, twist off the screws used for fixing the motor support ,pull it upward and then remove the motor support.	
6.	Remove **electronic expansion valve and four-way valve**	
	Unsolder the spot weld between electronic expansion valve and other connection, and then remove the electronic expansion valve. Unsolder the spot weld between the four-way valve and other connection, and then remove the four-way valve.	

Step	Procedure	
7.	Remove **the gas valve and liquid valve**	
	Twist off the screws used for fixing the gas valve and liquid valve, unsolder the spot weld between gas valve and return-air pipe and then remove the gas valve and liquid valve.	
8.	Remove **compressor**	
	Loosen the nuts of compressor, unsolder weld spot shown on suction pipe and discharge pipe of compressor, move the pipeline and then take out the compressor.	

10.3 Removal Procedure of Outdoor Unit (24K Unit)

Step	Procedure	
1.	Remove **top cover, front side panel**	
	Twist off the clamping screws used for fixing the handle with screwdriver, pull it downward forcibly and then remove the handle. Twist off the screws around the top cover, pull it upward and then remove the top cover. Twist off the screws around the front side panel and then remove the front side plate.	
2.	Remove **grille and right side plate**	
	Twist off the screws around the grille and then remove the grille. Twist off the screws between right side plate and end plate of condenser, valve support, pull it upward and then remove the right side plate.	
3.	Remove **electric box**	
	Twist off the screws on electric box cover, pull out the temperature sensor and then remove the electric box. Ensure don not contact control panel when removing electric box cover, if not, electrolytic capacity will discharge and lead electric shock or burn out control panel.	

Step	Procedure	
4.	Remove **axial flow blade**	
	Loosen the clamp nut with spanner, take out nuts, spring washer, plain washer and then remove the axial flow blade forcibly.	
5.	Remove **motor and motor support**	
	Twist off the fixing screws and then take out the motor. Twist oft the screws used for fixing the motor support, pull it upward and then remove the motor support.	
6.	Remove **four-way valve**	
	Unsolder the spot weld between four-way valve and other pipes and then remove the four-way valve sub-assy.	

Step	Procedure	
7.	Remove **the gas valve and liquid valve**	
	Twist off the screws used for the gas valve and liquid valve, unsolder the spot weld between gas valve and return-air pipe and then remove the gas valve and liquid valve.	
8.	Remove **compressor**	
	Loosen the nuts of compressor; unsolder the weld spot shown on suction pipe and discharge pipe of compressor. Remove the pipeline and then remove the compressor.